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Preparation of Leaders

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PREFACE

This paper was prepared by IDA as part of its support of the development of advanced learning for the Defense Advanced Research Projects Agency and for the U.S. Army Training and Doctrine Command.

The paper describes both requirements for adaptive leaders and learning methodologies to prepare adaptive land power leaders of all grades to prevail in likely future conflicts.

This paper extends the learning model described by the author in IDA Paper P-2947, *Training Third Wave Landpower: Structured Training*, December 1993.

This paper has been supported greatly by a number of experts who not only read a long and complex paper but also provided comments which have been incorporated. I group the readers below by perspective. I thank them all.

Senior commanders: GEN Abrams, LTG Kernan, LTG Magruder, LTG Steele, LTG (R) Ulmer.

Reflective senior leaders: MG Abizaid, MG Catalano, MG Dubik, MG (R) Maggart, BG Batiste, BG Chiarelli, BG (R) Mullen, BG Wass de Czege, BG Wood, COL Antal, COL Fil, COL (R) Fontenot, COL Lynch, LTC Border, LTC McMaster.

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The author remains solely responsible for the contents of this paper.

CONTENTS

EXECUTIVE SUMMARY	ES-1
I. INTRODUCTION.....	I-1
II. LEADER PREPARATION	II-1
III. LEARNING CHOICES—PREPARING ADAPTIVE LEADERS	III-1
A. Art of War (Command) and Science of War (Control)	III-1
B. Individual and Team (Vertical or Horizontal)	III-4
C. Evaluation—Self and External?	III-6
D. Event Focused and Change Focused	III-7
E. Train Up? Present Performance or Future Potential?	III-8
1. Diversity of Organizations.....	III-12
2. Command Echelons Represented.....	III-12
3. Missions Learned	III-13
4. Threat.....	III-13
5. Environment.....	III-13
F. School or Unit.	III-15
G. Self-Development and Mentored (Supported) Development	III-17
H. Proficiency or Schedule (Time)-Based.....	III-21
I. MIC and/or SASO or...?	III-22
J. Unit and/or TRADOC-Funded Learning	III-25
K. Learning for Diversity—Total Army and/or Joint/Combined/Civilian.....	III-26
L. Structured and/or “Free Play”	III-27
M. Objective vs. Subjective Evaluation and Scoring.	III-28
IV. CREATING LEARNING OPPORTUNITIES—ENABLING “STRUCTURED PRACTICE”	IV-1
V. FOUNDATIONS IN DEVELOPING OPERATIONAL LEADERS	V-1
A. Current Training Doctrine.....	V-1
1. Use Performance-Oriented Training	V-1
2. Train to Challenge	V-1

3. Train to Sustain Proficiency.....	V-1
4. Assess Training	V-2
B. Supporting Adaptive Leaders in Fully Digitized Units	V-3
VI. GENERAL LEARNING MODEL GUIDANCE.....	VI-1
A. Increase Experiential Learning.....	VI-1
B. Ensure Stress in Learning	VI-6
C. Near-Continuous Learning.....	VI-8
1. Purposes of Institutional Leader Learning.....	VI-12
2. Purposes of Unit Leader Learning	VI-12
3. Purposes of Self-development (Ubiquitous, All locales, Near-Continuous)	VI-12
D. Exploit CTC Learning Model	VI-15
E. Foster Commander-Dominant Digital Organizations.....	VI-19
F. Conserve Tactical Leader Time	VI-20
G. Use Chain Training.....	VI-22
H. Maintaining Competent Teams	VI-23
I. Develop Team Cohesion and Coherence.....	VI-24
J. Establish Two Unit Learning Foci	VI-25
K. Compensate for Limitations of TES	VI-28
L. Tune Decision-Making Processes	VI-28
M. Establish Common Tactical Context	VI-30
VII. CREATING ADAPTIVE LEADERS	VII-1
A. Learning Model Futures.....	VII-1
B. Learning Model Design	VII-3
C. A Framework for Management	VII-4
D. Cultural Challenges	VII-7
Glossary.....	GL-1

EXECUTIVE SUMMARY

This paper outlines the knowledge and skills requirements for adaptive operational leaders serving at digitized brigade and battalion level command and staff positions and then provides the guidance necessary to develop appropriate leader learning models for application in both institution and unit.

The paper proposes a dynamic systemic response. It is a methodology designed to satisfy current leader preparation requirements while charting how to evolve both requirements and appropriate learning models during a period of endemic change. The approach is to propose various learning choices appropriate to preparing adaptive leaders and to recommend a way to start actual learning model development. Then, explicit guidance is proposed for design of the learning models themselves. Finally, issues likely to occur in execution of the models such as appropriate management and cultural change are discussed. All discussion is grounded in the need to intensify learning processes and to improve both effectiveness and efficiency of learning in the future. This paper is a conceptual extension to leader preparation of earlier papers on Army learning.*

LEARNING CHOICES

The following learning choices are proposed for preparation of adaptive leaders. These are important alternatives which should be considered. Some are complementary, others are mutually exclusive.

- *Art of War (Command)—Science of War (Control)*. Both “engineers” of control and “artists” of command must be prepared, drawing on different yet complementary learning strategies.
- *Individuals and Teams (Vertical or Horizontal)*. All leaders operate as members of teams sharing vision, competence, confidence, and trust.
- *Evaluation—Self and External?* Key choices—formal, informal, internal, external. Reinstitution of evaluation of tactical proficiency is arguably the

* Frederic J. Brown, *A Simulation-Based Intensified Training Strategy For the Reserve Component*, IDA Paper P-2611, December 1991; Frederic J. Brown, *Battle Command Staff Training*, IDA Paper P-2785, December 1992; and Frederic J. Brown, *Training Third Wave Landpower Structured Training*, IDA Paper P-2947, December 1993.

single most important action to be taken to improve the quality of tactical leaders today.

- *Event-focused and Change-focused.* Events focus “engineers,” changes focus “artists.”
- *Train up.* Present Performance or Future Potential? Increasingly, junior leaders must become white- and gold-collar leaders. To train control, expose leaders to increasing complexity of organization, command echelon, complexity of mission, magnitude of threat, and environment. To educate command, increase the simultaneous rate of change of variables.
- *School or Unit?* Learn the basics in school including “how to” learn the “art” in the unit. All team learning is in the unit.
- *Self-Development and Mentored (Supported) Development.* Distributed learning enables much-expanded self-development with important new learning opportunities. Individual and collective training in institution and unit becomes individual, team, and collective learning in unit, institution, and self-development. There are more opportunities to learn, but time availability becomes a critical resource.
- *Proficiency or Schedule (Time) Based.* Effective learning mandates proficiency-basing, yet time is clearly important. World Wide Web (WWW)-basing may permit useful scheduling alternatives which enable extensive proficiency-basing.
- *Mid-intensity Conflict (MIC) and/or Security and Stability Operations (SASO), or...?* The spectrum of likely force commitment reinforces the criticality of creating rich, mineable scenarios to stimulate more effective learning across the range of likely force projection.
- *Unit and/or Training and Doctrine Command (TRADOC)-Funded Learning.* Seek alternatives for hybrid school-unit learning combinations in WWW.
- *Learning for Diversity—Total Army and/or Joint/Combined/Civilian.* Simplify processes to accommodate increasing diversity of personnel, organizations, and missions.
- *Structured and/or “Free Play.”* Permit structured predictability in training control. Demand complex, unpredictable situations in educating command.
- *Objective Versus Subjective Evaluation and Scoring.* Evaluate control to objective standard. Support extension of subjective expert assessments of command.

To be effective, learning choices need to be enabled by creating learning opportunities which enable “structured practice.” Practical, effective, and efficient training

support is required—either a described “Adaptive Leader Learner” or modifications to the proven Command Field Exercise/Fire Coordination Exercises.

The following are the foundations in developing leaders:

- *Current Training Doctrine.* Continue to draw on FM 25-100. It is excellent but needs updating.
- *Supporting Adaptive Leaders-Digitized Units.* Understanding then executing the TRADOC Digital Learning Strategy is essential to effective leader preparation for digitized units.

GENERAL LEARNING MODEL GUIDANCE

Having established the general framework of what has to be done to prepare adaptive leaders, general learning model guidance is necessary to actually build learning models. That guidance follows:

- *Increase Experiential Learning.* The Army has an enormous inventory of training support, particularly Tactical Engagement Simulation (TES). Use TES to make all learning experiential particularly that associated with the Digital Learning Strategy.
- *Ensure Stress in Learning.* Create as much control stress and command stress (different) as possible in all learning programs.
- *Near-Continuous Learning.* Individual and team leader learning should be continuous in linking school, unit, and self-development under the tutelage of proponents from pre-commissioning through retirement. New purposes are proposed for each.
- *Exploit Command Training Center (CTC) Learning Model.* The CTC model is superb, particularly observer-controller (OC) techniques of mentor, trainer or coach and after action review (AAR) procedures. Try to advantage these experiential learning breakthroughs more in school, unit, and self-development for training control and educating command.
- *Foster Commander-Dominant Digital Organizations.* Increase emphasis on development of commanders as individuals and as members of teams.
- *Conserve Tactical Leader Time.* Leader time is the single most important resource in the tactical unit. Develop policies such as common standard operating procedures (SOPs) or increased noncommissioned officer (NCO) responsibilities in garrison to conserve it.
- *Use Chain Training.* Commanders train commanders to ensure mutual competence, confidence, vision, and trust.

- *Maintaining Competent Teams.* Identify team tasks then create learning opportunities whenever there is change in team composition or likely forgetting has occurred.
- *Develop Team Cohesion and Coherence.* Cohesion is necessary but insufficient in digital units. A higher order of coherence, of excellence in sharing information, is also required.
- *Establish Two Learning Foci.* Learning must be designed for leaders and leader teams at both platoon and below and company and above. Techniques are likely to differ significantly.
- *Compensate for Limitations of TES.* Train leaders so they know strengths and weaknesses of varying forms of simulation.
- *Tune Decision-Making Processes.* Continue to draw on military decision-making processes (plan, prepare, execute—monitor, plan, direct) but modify decision processes to execution-base all battle command/staff learning
- *Establish Common Tactical Content.* A rich, mineable, common “road to war” is essential to more effective, efficient learning of both command and control.

Four actions need to be taken to move from concept to actual realization of operating learning models creating adaptive leaders.

1. Develop learning model design that includes the following:
 - two complementary programs—train control, educate command;
 - leaders function in teams (commanders and staff leaders);
 - develop shared vision, competence, confidence, and trust;
 - competence-base performance of control processes not command practices;
 - learn command and control through repetitive, stressful, immersion, in highly ambiguous situations, drawing on the Experiential Learning Model (ELM) in school and self-development as feasible;
 - create near-continuous learning linking school, unit, self-development—Officer Personnel Management System (OPMS) XXI/Enlisted Personnel Management System (EPMS) XXI to preparation of individuals, teams, and units (a 3×3 learning matrix); and
 - train up to prescribed levels (all soldiers E5 and above).
2. Create a framework for management that should
 - stimulate innovative adaptive leader development by various proponents;

- govern a 3×3 learning matrix, interlocking individual, team and collective learning content consistently across institution, unit and self-development;
 - support user funding of “profit centers” for learning development [proponents, Army Training Support Center (ATSC), CTC, National Simulation Center (NSC), and University After Next (UAN)/ Center of Army Lessons Learned (CALL)]; and
 - support independent assessment of effectiveness and efficiency of all learning programs.
3. Develop learning model futures: prepare for discontinuous change by adopting a “leap ahead” explicit learning strategy requirement which will frame development by government and industry.
 4. Cultural Challenges. Identify and overcome dysfunctional cultures such as
 - no “testing”;
 - the only good instruction is resident instruction;
 - effective staff teams must be formed physically; and
 - time allocation is the unique prerogative of the local commander.

I. INTRODUCTION

The 1990s have been a challenging period for the United States Army. New strategic requirements combined with emerging technologies offer every prospect of causing fundamental change, simultaneously, in every facet of the Army development paradigm—doctrine, organization, material and training, soldiers and leaders. All occurs during a period of severely constrained resources despite an increasing tempo of mission commitment. There is no reason to believe that the pace will slow in the next decade.

The great strength of America's Army—the unique army of a people, a state, a nation, a democracy, and almost a continent—is people. The response to the challenge of enormous change is people. More specifically, it is senior and junior leaders who possess the necessary skills, knowledge, and attributes to move ahead of change—leaders who sustain the core values of the military profession yet can move quickly, decisively, to adapt to change. The need is for adaptive leaders.

The purpose of this paper is to describe what these adaptive leaders must be at the tactical echelons (brigades and battalions) and suggest policies and programs to create these leaders routinely, across a remarkably diverse organization. To do this, I propose new learning paradigms which would, in time, become new learning models applicable in institution and unit as well as through self-development.

I hope that the analysis which follows will cause each reader to reflect, to think through a “better way,” and to move out to “make it happen”!

II. LEADER PREPARATION

The mission is to prepare "A White Paper that outlines the operational leader requirements at brigade and battalion level for the contemporary mission environment. The paper will focus on the knowledge and skills necessary for the brigade and battalion command and staff employing digital command and control technology enablers."¹

Subsequently, I was to propose two prototype learning models for the Army:

- The first model will be employed in a brigade and battalion garrison environment and become the primary training vehicle for sustaining readiness of Brigade and Battalion commanders and staffs.
- The second model will be an institutional training base learning model to develop majors' and captains' leader and staff competencies for brigade and battalion operations employing digital command and control enablers.

Thus, my approach to this paper has been not only to propose operational leader requirements but also to recommend learning guidance appropriate for subsequent application in prototype learning models.² I begin in the contemporary mission environment best summarized as Mid Intensity Conflict [southwest Asia/northeast Asia (SWA/NEA)] and Stability Operations [Stability Force, Europe (SFOR EUR)]. I then transition to the emerging learning requirements of Strike Force and Army 2010, for they reflect emerging requirements in the context of the Joint Venture work.³

The charge to address "digital command and control technology enablers" is met in two ways. Almost all One Army units possess some form of digital C2 enablers, reaching back to the aging maneuver control system (MCS), tactical fire direction system (TACFIRE) or unit level logistics system (ULLS). I therefore assume all brigade and

¹ TRADOC Statement of Work FY 99 Dec 3 1998.

² The requirement for proposing detailed learning models was subsequently withdrawn by the Commanding General TRADOC in order to develop the models "in house" based on the conceptual framework of this paper. Letter GEN John Abrams to F.J. Brown, 28 October 1999.

³ This white paper assumes continuation of current national military policies such as a volunteer force and retention of smaller, higher quality military forces until appearance of a "peer competitor." The proposed framework for preparing leaders, however, can be extended to produce "fewer, better" leaders or conversely to prepare many more leaders required in a mobilization-based return to conscription.

battalion size units have some form of digitization. Learning requirements associated with that capability are factored into my proposals routinely. "Fully digitized units" now associated with Force XXI are addressed in discussion of the Training and Doctrine Command (TRADOC) Digital Learning Strategy (DLS), the current training doctrinal framework for digitization.

There are two central challenges in developing operational leaders at brigade and battalion level: (1) determining what knowledge and skills are required then (2) developing practical guidance to support fielding the capability to actually build the necessary knowledge, skills, and culture. The measures of success meeting these challenges will be in the adequacy of subsequent product—explicit learning models for both institution and unit—as implemented successfully in units.

The response should be dynamic, a systems response, for change in both requirements and in developmental approaches will be endemic, sought in fact, as land power seeks new forms of decisive advantage well ahead of global change. So there can be no one answer. What is required, rather, is a leader development system—a family of answers. A methodology is required first for determining evolving requirements, then for actually creating the leaders desired; all must be responsive to the certainty of changing requirements.

Solid work is being done by the Center of Army Leadership (CAL) in developing knowledge and skill requirements for future leaders, described for Strike Force as adaptive leaders. That is a useful perspective not just for Strike Force but also for all leaders at brigade and battalion (or equivalent) echelon in Army 2010. I therefore adopt the term "adaptive leader" to describe the general characteristics of future brigade and battalion leaders in the U.S. Army.

CAL defines an adaptive leader as "a leader who can influence people—by providing purpose, direction, and motivation—while operating in a complex, dynamic environment of uncertainty and ambiguity to accomplish the mission and improving the organization."⁴ Essential skills for organizational leaders (battalion and brigade echelons) are defined as interpersonal, conceptual, technical, and tactical. Each skill is important. For this paper, however, I focus primarily on the tactical skills and secondarily on

⁴ "Defining Adaptive Leaders for the Strike Force Environment: The End State—A Doctrinal Approach," Draft 10 May 1999, p. 8.

conceptual skills as described in "Army Leadership Be, Know, Do." FM 22-100, June, 1999.⁵

This choice is based on the following assessment. Adaptive leaders are plentiful in the U.S. Army particularly since the end of the Cold War. The operational pace has increased significantly. Leaders serve globally, often in ad hoc hybrid organizations formed to dominate a particular mission. Promotion, if not retention, in a downsizing Army has been dependent on the ability to adapt to changing situations: an officer or noncommissioned officer who is not highly adaptive simply would not have survived. That adaptive quality, demonstrated at all echelons in multiple deployments, is a great strength of the U.S. Army today and seems likely to continue for the foreseeable future.

But commendable tactical adaptiveness has been generally defensive in nature, directed in search of order and certainty to ease individual achievement of tactical competency as one of many competing officer development requirements. As observed at the CTCs, leader adaptiveness has been, "in case of doubt, prepare more, better plans." Change is often feared, hopefully avoided, not advantaged. For a number of compelling reasons, largely too brief service in tactical units learning and practicing the complex skills of warfighting, tactical and conceptual skills are seriously lacking in many company-grade and some field-grade officers of the maneuver arms today.⁶ They shall lack even more in the future if decisive actions are not taken to fix leader preparation. Therefore, I focus on conceptual and tactical aspects of preparation of adaptive leaders as the critical path for developing adaptive leaders in the future. Tentative leaders uncertain of their tactical skills are poor if not dysfunctional mentors for the following generations.

I address the contemporary mission environment—where the Army is today or is likely to be in the next several years. This is where leader preparation clearly needs to be fixed, but I benchmark my approach less on today's leader requirements than on those anticipated for tomorrow's requirements expressed in various Army Joint Venture products. That leader development challenge has been expressed well in various war games, which have demonstrated a requirement for "leaders to operate in a highly complex, ambiguous environment characterized by challenging simultaneous military,

⁵ For an excellent complementary discussion of leadership requirements, see Walter Ulmer, "Military Leadership Into the 21st Century: Another Bridge Too Far?" *Parameters*, USAWC, Spring 1998, p. 4.

⁶ Fear of sustaining excessive losses has been a further source of very conservative tactical operations at both JRTC and NTC.

geopolitical, and civil situations.”⁷ The recent AAN Spring War Game (SWG) foresees future leader characteristics as: “critical thinker, battlefield visualization, systems understanding, mental agility, comfortable with ambiguity, skilled team builder, and leverages technology.” This white paper is founded in the present but clearly addresses a future requiring combined perspectives at all echelons of leaders. The Army needs leaders with those characteristics sooner rather than later. Equally important is development of new leader teams prepared to exploit new support doctrines such as those associated with reception, staging, onward movement (RSOI) of strategic force projection.

Leader requirements are those of an adaptive leader whether he or she is a commander or serves as a staff principal; that is, the leader of a staff team. Because the Army is a commander-dominant organization, I shall focus primarily on the commander, whether branched combat, combat support, or combat service support. But rarely does this commander of an operational unit at the Brigade or Battalion echelon (Division or echelons above Division) act in isolation. The command group team includes the Command Sergeant Major. The staff leader team includes key noncommissioned officers and often Warrant Officers. Whether addressed explicitly or not, they are all leaders who need to be prepared consistent with what is proposed here.⁸

I foresee the successful future operational leader as acting both as an individual and as a member of a team possessing a common, clear perspective of current operations in the context of a continually updated vision of a desired tactical end state. The operational leader, *as an individual and as a member of a team of commanders and key staff officers*, understands what is occurring now and what is about to happen. He understands why it is occurring and how events can be influenced to ensure the desired end state is achieved despite near continuous change—good and bad. The leader thrives on change, confident that he can mold change to advantage through deep understanding of the variables of land combat. He can synthesize disparate events and in a “leap of insight” know how he wants to act to dominate the situation now and in the future.⁹

⁷ “SWG Imperative Insights” in 1999 Army Leader Development Imperative Update Briefing, U.S. Army Combined Arms Center, no date (May 1999), VGT 8.

⁸ Although their contributions are indirect, civilians, be they vitally necessary Department of the Army Civilians (DAC) or civilian contractors, are also important leaders whose preparation will have to be addressed. Neither warrant officers, noncommissioned officers nor civilians are addressed in sufficient detail in this white paper which focuses on “operational leaders” at brigade and battalion.

⁹ Observation of COL Greg Fontenot, May 1999.

By using to advantage information available through extensive use of digital command and control technology enablers, the leader is part of an adaptive leader team possessing shared competence and shared visions of what will happen, why it will happen, and how to change (adapt) to make the shared vision become reality—sharing enabled by digital command and control technology enablers. And there is shared confidence in the collective abilities of the team which engenders strong mutual trust, which can be reinforced by timely sharing of information.

A central supporting task is creation and sustainment of a supporting environment which stimulates innovation—inquisitive searching for new ways to do new things, accepting that risk is an integral part of innovation during a period of substantial organizational change. This environment needs to build in both garrison and field. It cannot be turned on and off based on the immediate day-to-day duty climate. For example, centralized operations in garrison do not build the trust essential for decentralized operations in the field. Sustaining a supporting environment is a major challenge for leaders at all levels. The environment is either waxing or waning. It is never static. Untended by concerned leaders, it will wilt and disappear. Effective, sensitive governance is essential.

A highly relevant historical example of the tactical potential of this environment is Generals Lee and Jackson in the Civil War, who, sharing a common vision, decided rapidly to leverage a tactical opportunity at Chancellorsville, despite considerable risk. *The goal of adaptive leader preparation is to create then sustain such individual and team capability (vision, competence, confidence, and trust) and allow it to thrive in a climate of innovation.*

III. LEARNING CHOICES—PREPARING ADAPTIVE LEADERS

Wide choices are present for developing adaptive leaders. Several are indicated below—school or unit, structured or free play, self-developed, or mentored (supported), to list a few. They portray the limits of a range of choices available to those designing specific effective learning programs to create adaptive leaders, both individuals and teams. The range of choice in each area is important. *Design of useful strategies to train control may be absolutely dysfunctional for educating command and vice versa.* Preparation of future adaptive learning strategies should involve purposeful selection across the range of choice in each of these areas. This should be done in the learning models which should follow this White Paper. Proposed development guidance for these learning models is included at Enclosure.

A. ART OF WAR (COMMAND) AND SCIENCE OF WAR (CONTROL)

Command and control is perhaps the most basic distinction in preparing learning strategies and programs. Is the learning focus primarily on development of the skills associated with control or those considered essential to command? Or what is the desired mix of the two?¹⁰

Effective control requires in depth personal knowledge of the various variables of combat individually and as they interact in order to focus combat power consistent with the purposes of the leader.

Effective command involves knowledge of the professional detail of control plus the creation, then execution, of an intuitive vision of action which will impose the will of the commander on an opponent. It requires deep understanding of the operational environment, the variables of combat, combined with a near-instinctive ability to sense, then exploit, opportunity and danger as well as the ability to inspire exceptional individual, team and unit performance in attaining desired evolving end states. It requires

¹⁰ I can be fairly criticized for over-contrasting command from control. True, there are certainly elements of each in the other. I believe control is overprepared. My purpose is to highlight the need for balance when preparing leaders in both.

competence and confidence which encourages innovation in the face of new opportunities and challenges.

and Command or Control	
<ul style="list-style-type: none">• Art-“visionary artist”• by exploring• how? why?• intuition based on deep knowledge, extensive experience• drawn from intuitive judgment• “mentor” with “coach”• “teaming” essential• EDUCATE	<ul style="list-style-type: none">• Science-“engineer”• by prescriptive formula• what, by task?• definable, predictable, measurable, and repetitive process• draw on ABCS data resources• “AAR” with OC• “teaming” depends• TRAIN

The learning environment for training high-performing control is not the same as that required for educating highly effective command. They are similar in following the practices of effective learning but different in that one prepares the “engineer”; the other prepares the “artist.”¹¹

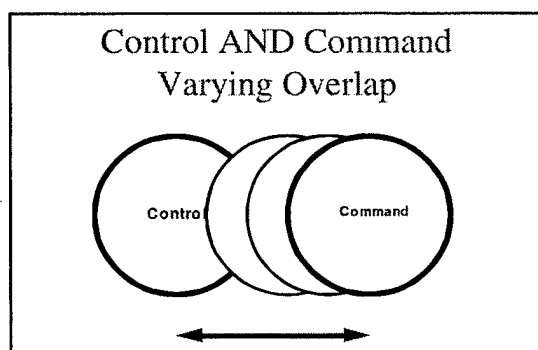
Preparing engineers of control: This effort is hands on, task-based, and supported by rule-based decision aides such as process matrices. It requires a criterion-referenced performance assessment and is embedded in the current Army Training System. This training is best achieved with process-oriented After Action Reviews (AARs) between iterations of increasing difficulty in employing the “tools” or Battlefield Operating Systems (BOS) of contemporary combat. Design of training in control has been done generally well in the Training Revolution.

Preparing artists of command: This effort is highly subjective and vision oriented in terms of the desired end-state created in conjunction with the vision of the chain of command. It draws on deep knowledge and informed intuition and is driven by judgmental impressions in the commander’s “minds eye.” The art of command is best learned by intensive extended discussion with master mentors who understand and can explain the “how and why” of the visionary end state sought by the artist. Mentors then coach “what if” and “what then” iterations, encouraging leader self-discovery of the more

¹¹ But to be an artist one must first be an engineer.

subtle relationships between variables and the second- or third-order effects. Stress is achieved through frequency and magnitude of change in variables and levels of risk for various alternatives. Accordingly, different (AARs), observer controllers (OCs) and training support packages (TSPs) will be required to prepare artists. Different learning applications from those intended to train engineers. Design of education in command has not been an area of proactive support to unit learning throughout the training revolution. That is, the enabling tactical engagement simulation (TES) has been created, but there is very little information on how to use it to educate, other than the CTC model.¹²

For example, there seems to be a clear need for education in the values of the military profession transitioning into development of understanding the art of command at all echelons of service. Some art is involved in execution of nearly all leader responsibilities. A leader preparation issue is how much, when, where—institution, unit or self-development? At precommissioning and during Initial Entry Training (IET), “art” may mean understanding the abiding values of the military profession, such as selfless service to nation, duty, honor, country, which will frame later understanding of more complex aspects of the tactical art gained while serving in a unit. In sum, the need for training science is broadly understood; the need for educating art at all echelons is not.



Adaptive leaders clearly must learn to be both engineers and artists in an environment of continuous change. But determining how much of each, when, and for what learning purposes will be a vital decision for those more senior commanders charged with preparing adaptive leaders in both institution and unit. In fact, as suggested above, the concern must be to develop leader values, attributes, skills, and actions for

¹² Good new work is emerging from ARI/ARL stimulated by Army Experiments 5 and 6 and Strike Force development (Training, Leader, Soldier [TLS] Task Force).

both command and control. This diagram may be a more appropriate way to portray the relationship. The degree of overlap will change as missions and echelons vary.¹³

Any learning model of command and control should provide substantive alternatives because the requirements of each are profoundly different—a reality frequently overlooked during the training revolution. And it seems likely that the learning mix will have to be flexible, and responsive, as mission environments change in the future.

Development of the learning content will be challenging. The Standard Army Training System (SATS) is more easily applied to the training development for control than for command. Given the many variables underlying command tasks and the subjective nature of some tasks, wise mentors must provide learning objectives which may be quickly shifted in any particular session to home in on immediate needs and opportunities for learning. Any formal training development system, such as SATS, can only be used to frame the basic learning development components such as front end analysis, definition of instructional objectives, testing and lesson contents, and rear end analysis. The instruction for command may be organized and structured, but its validity derives essentially from student and mentor—where the interactions cannot be frozen with rigor in any lesson plan.¹⁴

The challenge will be to implement consistently, across America's Army, execution of policies and programs which develop leaders competent and confident in *both* command and control, the "yin and yang" of creating adaptive operational leaders at brigade and battalion.

B. INDIVIDUAL AND TEAM (VERTICAL OR HORIZONTAL)

Most leader training today is individual based. Individual preparation is the focus of the Training and Doctrine Command (TRADOC), the Army institution charged with tactics, techniques, and procedures (TTP) of leader development. Preparation of the individual is certainly the *sine qua non* for developing leaders; however, very rarely do leaders act alone. A commander is part of a command team, directly concerned with both

¹³ LTC Don Craig, Center of Army Leadership, made an excellent suggestion to use the term "architect" rather than "artist" since there would be a closer obvious command link to a foundation of science. I prefer the greater range of personal interpretation implied in "artist" as I believe it more expressive of the future adaptive leader.

¹⁴ E-mail observations from Dr. Jack Hiller, former Director, MANPRINT, ODCSPER, Department of the Army, July 1999.

senior and junior commanders at least two echelons up and two echelons down the chain of command. That commander team concern is both general (senior to subordinate combined arms, cross BOS, etc.), and functional (technical concern within the battle function—fire support, logistics, etc.). Key staff officers such as the 2IC/XO, S3, and S2 are also leaders. They execute their responsibilities as a horizontal team (staff “huddle”) orchestrating a joint suppression of enemy air defense (JSEAD) or as a vertical team—the Fire Support Officer (FSO) at battalion and the FSO at brigade to division artillery haggling as they allocate fire support or the engineers weighing how best to restore damaged routes without appearing to favor any local competing factions in Security and Stability Operations (SASO). There seems to be a clear need to incorporate both “what” and “how” to execute both art and science for leader teams in institutional preparation of leaders.

Sparse learning doctrine or Tactics, Techniques, Procedures (TTP) have been prepared by TRADOC for team learning. Superb officer learning occurs in small-group instruction under the mentoring direction of small-group leaders. This highly effective and efficient learning has permitted substantial reductions in student class time without show-stopping degradation of learning to date. But this useful innovation has been directed at better preparation of leaders as individuals, not developing and teaching better practical learning strategies for training dissimilar teams in units. Commander or staff leader teams exist only in units. They consist of highly heterogeneous groups (Senior noncommissioned officers and Lieutenants to Colonel) ranging from war college to basic course-prepared officers in the typical brigade. Regrettably, the doctrinal proponent in TRADOC both prepares leaders and draws team learning TTP insights from necessarily homogeneous groups (students). Faced with this overarching limitation (homogeneous sample for a heterogeneous target audience), schools seldom address unit leader team preparation. Heterogeneous team learning is desirable but low in priority and seldom provided resources because it is clearly a unit chain of command challenge to fix. No proponent routinely addresses preparation of adaptive heterogeneous commander and staff leader teams in units. So leader teams in units are prepared using TTP developed within the individual unit—a highly idiosyncratic practice with disparate results.

Therefore, choice between individual- and team-learning strategies to prepare adaptive leaders in units is limited, to the near exclusion of team learning. There are some good products for institution-based team learning in maneuver captains’ career courses (CCC), conduct of the School of Command at Leavenworth, and CTC leader training

programs (LTPs), but they are all institutional products. Support of team learning in units is an important deficiency in current learning models.

This deficiency seems likely to become more important in the future. Rapid team building particularly in the command and staff leader areas is one of the critical path challenges of Joint Venture. Leader team development—rapidly creating common competence, confidence, visions, and trust—across dissimilar organizations (One Army, joint, combined, and civilian) is an area for major research and development (R&D) for leader teams just as much as it is for rifle squads.

C. EVALUATION—SELF AND EXTERNAL?

A fundamental precept of the Army learning system is that all learning is evaluated, all evaluation is learning. After institutionalization of performance-oriented training to task, condition, standard (TCS), application of this principle drove the rebuilding of the Army post Vietnam. Army Training and Evaluation Programs (ARTEPs) (including subunit evaluations), skill qualification testing (SQT), and tightening standards on various proficiency assessments such as armored fighting vehicle (AFV) gunnery, expert infantry badge (EIB), and expert medical badge (EMB) were all essential building blocks. Most are gone today. Evaluation is expected to be self-generated or is decentralized to the individual preference of the small unit commander. Little evaluation content is available for certification of leader or staff team proficiency in exercise of control. Even less is available on the exercise of tactical command.

It is difficult seeing the Army addressing the challenges posed in this paper if there is no abiding evaluation process at brigade and battalion. Without some rigor in evaluation, improvement or decline is anecdotal—insufficient to justify resources or, more important, to evaluate progress in implementing new programs.

Evaluation can take many forms—internal, external, informal, or formal. There is a time and place for each. Internal, informal evaluations should be routine, absolutely commonplace, and focused on execution of the common processes of control. The platoon leader out in the “back forty” talking over with the platoon sergeant what has to be done better, based on common observation, is good evaluation. Better evaluation occurs if the company commander and/or first sergeant look in, but not too frequently.

Evaluation is relevant too in developing the art side, but in a very indirect way. Intent is everything. Only within the chain of command can intent of the superior commander be fully known. And only with that information and with access to the detail

of actual execution can mentors support leader learning by comparing intent to reality. But there is no approved solution, no best way. For that reason there can be no formal evaluation of the art.

This is an extremely important point. Evaluation is not a luxury. It is a necessity for good leader development in the science of control at all echelons. But attempts to measure art to evaluate some abstract command proficiency are not only impossible, they are also absolutely dysfunctional to the spirit of discovery, of insight, of experimentation to develop an experiential base—all of which are absolutely critical to formation of the adaptive leader! Nothing will kill the development of adaptive leaders more quickly than inappropriate attempts to evaluate art.¹⁵

The range of possible choices for evaluation is broad. Army assessment/evaluation policy for adaptive leaders could range from none to self to unit chain of command to TRADOC for the chain of command; internal or external; and random or scheduled related to command or control (preferably to both). *Reinstitution of evaluation of tactical proficiency (engineer not artist) is arguably the single most important action to be taken to improve the quality of tactical leaders today.*¹⁶ There is precedent in objective evaluation of task proficiency in control. It was successful. It should be reinstated. Evaluation of command, of the artist, cannot be objective. It must be left to the subjective assessment of those in the chain of command. Evaluation must sustain standards attainable by the average unit having been provided sufficient resources (including time) to achieve the standards. Without that, evaluation can be a substantial drain on leader integrity.

D. EVENT FOCUSED AND CHANGE FOCUSED

Most Army training is event based, the highly satisfactory outcome of the rigor of task-based training. This rigor is absolutely supportive for learning the elements of control—process. Focus on process which applies to the military decision-making process (MDMP) leads to emphasis on ever better planning to correct for the uncertainties of the battlefield. Clearly more, and better, planning (war gaming, etc.) will provide branches and sequels likely to insulate command and staff from unpredictable

¹⁵ The Center of Army Leadership is pursuing evaluation supporting the general precept of battle command to “know yourself.” One particularly promising technique is the 360-deg assessment. That is a leader assessment by his/her seniors, peers, and subordinates.

¹⁶ Excellent progress is being made in reinstituting tactical unit evaluations by FORSCOM. See “Standards” in *Winning Spirit*, U.S. Army Forces Command, 1999.

change. A highly desirable state to the engineer, control seeks welcome certainty in dominating the flow of events.

Little is certain to the artist exercising command, other than the certainty of change in the “battle read” and his feel for the fight as inevitable friction occurs in the land fight. Change is inevitable, due to both likely and unpredictable change in the variables of combat. The victor is the commander who can dominate the battle impact of these changes and who has the self-confidence to carry through inevitable uncertainty. The leader who can sense the change even before it happens and advantage it, wins. He or she has a highly sensitive battle read, an intuitive sensing of opportunity or risk. The commander, an adaptive leader, seeks an inventory of proven “plays” or “drills” available as arrows in a quiver to be used decisively when the commander senses the appropriate moment. Those arrows can assume ever-broadening characteristics as the adaptive leader acts to impose his or her vision on an ambiguous, highly volatile situation. In SASO, both what is important and how best to build it, can vary dramatically, suddenly. The adaptive leader, at the top of his game, has anticipated this change and capitalizes on the opportunity.

This commander is not event focused; he or she is change focused, the product of a different learning regime than that which has proven to be so successful for the “engineer.” Note that “he or she” above must be “they”—successful high-performance teams of commanders or staff leaders.

The challenge is to choose which approach in developing the adaptive leader. Neither approach is better or more important. Both are essential in institution, unit, and self-development. But because of recent past focus on control, command is the more important of the two now.

E. TRAIN UP? PRESENT PERFORMANCE OR FUTURE POTENTIAL?

Are leaders to be prepared in the institution, then in the unit, and through self-development to perform at current grade or higher? If so, how much higher?

Although this is a simple question, the response is complex. First, most learning is in the unit or through self-development, not in the institution. Nonetheless, the institution sets the standard and tone for all learning. It is focused on establishing then executing

“best practices” and thus should establish the train-up “mark on the wall” training leaders how to train.¹⁷

There are precedents for substantial train-up. After World War I, the German Army (Reichswehr), limited in personnel and equipment by the terms of the Treaty of Versailles, elected to train up to a notable degree. Noncommissioned officers were prepared to become officers upon mobilization. Promotion stagnation in the U.S. Army between WWI and WWII—captains for 20 years—resulted in significant train-up in Army schools, such that officers were prepared for much higher command (three or four grades) when war came. After Vietnam, courses were more aligned to preparation of leaders for responsibilities they would assume immediately after graduation. The most notable example was the Officer Advance Course, which became a Company Commander’s course focused on “what,” as the overall course was shortened at a cost of reduced brigade or battalion staff officer preparation. Today, there is general concern that increasingly inexperienced company and battalion echelon leaders are provided insufficient preparation for tactical command or staff in either school or unit. The perceived shortfall is exacerbated by more diverse leader competencies, which appear to be required as leaders prepare for both MIC and SASO (military operations other than war). Train-up seems back in demand.

Several years ago, I expressed future leader requirements in terms of a then-current leader corps of blue- and white-collar leaders. My insight was that this division, usually related to white-collar officers and blue-collar noncommissioned officers, no longer applied. Noncommissioned officers were becoming increasingly white collar (E8 and E9) while some officers were becoming gold collar (O4 and above), defined as having competency in multiple BOS.

The case was stated in 1993 as follows:

The old blue-collar–white-collar distinction seems dated. I believe that this traditional distinction is inadequate today, post-AirLand Battle. It is more useful to think in terms of iron-, blue-, white-, and gold-collar personnel requirements. Iron-collar requirements are robotic, computer driven. Blue collar now includes disciplined execution of assigned individual and collective tasks by blue and iron collar. White collar refers to leading in

¹⁷ There are various tried and true training techniques which must be refreshed frequently by the institution. Leaders are trained first so they can train their subordinates. Demonstrate proficient performance to the trainee. Rehearse. A useful current articulation of these TTP is the “Eight Step Training Model” articulated by Gen(R) Bill Crouch.

the accomplishment of single BOS missions (maneuver, fire support, air defense, or combat-service support). Gold collar refers to the ability to integrate iron, blue, white, and other gold successfully, in a rapidly changing situation, under stress. More precisely, it is the ability to conceptualize and successfully execute the focusing of multiple BOS functions in time and space to achieve the intent of the higher chain of command.¹⁸

These white- and gold-collar distinctions have grown since the end of the cold war. Partnership for Peace in U.S. Army Europe (USAREUR) committed company-size formations to bilateral or multilateral peacekeeping training as a vehicle to introduce battalion-, brigade-, and division-echelon mentors who influenced national military leaders, particularly in former Warsaw Pact nations. This program has been extremely successful—evidence the support from our NATO Eastern allies in Kosovo. The program was an absolute reversal of normal force generation—company generating up, not division generating down—executed exceedingly well by officers and senior noncommissioned officers mentoring far more senior foreign leaders. This is solid gold- and white-collar competence—highly competent One Army individuals and small teams deployed to influence the military in other nations.

These positive experiences have created expectations of individual young soldier proficiency roughly similar to those expected in the past of more senior soldiers in Special Forces teams. “Every soldier a leader” is probably not attainable, although those expectations were neared if not attained in the rigorous mission rehearsal exercises (MRE) training for the Balkans.¹⁹ It does not seem unrealistic for Joint Venture (TLS) experimentation that every soldier (E5 and above) should be prepared as a leader. If so, that is a significant train-up challenge which appears to extend well beyond Joint Venture. At a minimum, it would seem sensible to assert that white collar has come down in grade. If not now at E4 or E5 [which appears to be the case particularly in [combat service support (CSS) units], general migration to E7, perhaps E6, seems to have

¹⁸ Frederic J. Brown. *The U.S. Army in Transition II: Landpower in the Information Age*, Brassey's (AUSA): McLean, 1993, p. 110.

¹⁹ MRE have been exceedingly well done. But they should be treated as a necessary but undesirable byproduct of severe resource reductions influencing Army learning. The model is Train, Alert, Deploy. MRE reverses this to Alert, Train, Deploy, implying that the normal sustained level of unit learning proficiency is inadequate, therefore intense preparation is required. The well-prepared unit should not have to undergo an MRE. Units deployed to SWA (Intrinsic Action) deploy “as is.” That, not MRE, should be the objective learning model for One Army units. MRE would then apply to transition the already well-prepared unit to unexpected METT-TC.

occurred across the Army. NCOES content would appear to be affected, perhaps down to PLDC.

Heady stuff! But there are abiding realities of combat (Hurtgen Forest to Kosovo) which have created the need for the superb noncommissioned officer corps which exists today. As a young combat arms officer, I was taught that the fundamental difference between an officer and a sergeant was that the officer shows the soldier how to die (developing the attack plan, then "Follow Me"), while the good sergeant shows him how to live (pre-combat inspection, maintenance completed, solid fighting positions prepared, good food, and mail). Basic science (process) done exceedingly well despite cold, wet, and misery is vital to success. This will forever remain "sergeant's business."

So underlying all train-up discussion is the enduring reality that process done exceedingly well is the vital turf of the sergeant, while the officer is consumed in the art to win—whatever the nature of the enemy. The unit will not succeed unless both are done well, despite great deprivation. That relationship, and cohesion, are at the core of the enduring blue collar strength of the Army, which simply cannot be permitted to fade. The Army must preserve this vital role of the sergeant while building more really competent, confident leaders at all grades. The Army needs white-collar sergeant leaders, perhaps someday gold-collar CSMs, but in any unit (C, CS, or CSS), the CSM must be at his or her core a blue-collar leader maintaining the unglamorous, nondigitized but vital disciplined attention to soldier detail which marks the successful unit. Perhaps the adaptive CSM is the white-collar leader who can, with great competence and confidence, revert in a heartbeat to become the best blue-collar soldier in the unit.²⁰

In sum, the CSM must remain a superb blue-collar role model and enforcer just as his or her commander must set the example in creating, then fulfilling, a shared vision of tactical success overcoming the vision of enemy commanders at every echelon. Adaptation to new opportunities is necessary. Retention of competence in traditional roles is vital.

In addition, upon reflection, I believe my former blue-, white-, and gold-collar distinction above is incomplete. By inference, it is too science or process oriented. Where is the art, the ability to imagine, then enable, a tactical vision, relishing, not avoiding, change? More definition needs to be applied to the formulation so thoughtful train-up decisions can be made. That is, what echelon of command or staff is a leader to be

²⁰ Important insight. Thanks to COL (P) Johnson, Comdt Engineer School, 13 August 1999.

prepared to perform—when, for what reason, and where—for all components of the One Army? What do art and science translate to in practical design terms for learning content as the framework for often near-continuous learning is established? What should the general content of train-up learning support be?

First, consider control—science. What are reasonable expectations as to leader competencies which need to be learned? I propose that several “sliding scales” of increasing complexity need to be developed to express individual or team train-up requirements. All examples below address each of the variables of combat.

1. Diversity of Organizations

- Army, single BOS
- Army, multi BOS
- Joint
- Combined
- Non-Governmental Organizations/Private Volunteer Organizations (NGO/PVO).

Which combinations of organizational complexity are to be presented, and at what level of leader preparation, to both officer and NCO (to E5 or perhaps E4)? Certainly, blue collar is primarily Army—80 percent within own CMF, 20 percent working with other CMF. White collar may be 60 percent Army, 10 percent Joint, 30 percent combined and NGO/PVO grouped. This latter percentage may seem high, but those percentages approximate the organizational content of many scenarios at the Joint Readiness Training Center (JRTC) now for grades E8 to O3, the 1993 white-collar universe. Gold collar could be 40 percent Army, 20 percent Joint, 40 percent combined and NGO/PVO grouped. The latter percentage is probably higher in the Balkans today.

2. Command Echelons Represented

- Command echelon of grade (company for O3) plus one echelon higher, or two echelons higher, or three echelons higher.
- Blue collar: own echelon and one higher. White collar: own echelon and two higher. Example: O3 train company command then staff through brigade echelon.
- Gold collar: own echelon and three higher. Example: O5 train battalion command then staff through corps echelon.

The relative percentage of each should be determined by the various Proponents. What is appropriate for junior and senior noncommissioned officers?

3. Missions Learned

- For all blue and white collar, Mid Intensity as the core Army capability—the foundation for all other mission learning
- For gold collar, the five mission sets envisaged for Strike Force—high end conflict, early entry, peace engagement, deter/contain, and humanitarian assistance.

4. Threat

The threats range across the spectrum of conflict, with the opposing leader clearly increasingly sophisticated in exploiting potential differences among and between Army, joint, combined, and civilian organizations. Threat design could use the framework of the five Strike Force development scenarios at start.

5. Environment

Vary the general environment within which diversity of organizations, command echelons, missions, and threat are presented. Characteristics of varying environments would be volatility, ambiguity, uncertainty, and complexity, each of which could be ratcheted up or down, alone or in combination, as desired.²¹

The methodology for determining the train-up content for learning art is a bit different. Now the challenge is to develop understanding of the “how” and the “why.” It is institutionalizing adaptive learning—developing the leader’s ability to understand, then anticipate, change (highly complex, ambiguous, simultaneous) in a world of increasing complexity. A methodology is proposed below for the adaptive leader learner (ALL). Common scenarios would be modified to present increasingly complex vignettes by varying one, two, or three of the variables of combat simultaneously. The rate and magnitude of the change can be “metered,” as can the amount of time available for the leader or the leader team to respond to the changes. It is best if the changes are increasingly unanticipated, which is the most challenging case for enabling the leader’s vision. Blue collar would be presented the least complex vignette, then more difficult

²¹ Characteristics proposed by COL Landry, DAC, ADA School, August 1999.

(complex, ambiguous) for white collar, with the most demanding focused on preparation of gold-collar adaptive tactical leaders.

This all appears fairly straightforward as rational for designing train-up learning for both control and command. Much of the actual learning will occur in the unit or in self-development, but counsel as to a way or best practices for metering the learning will have to be provided by the learning “pros” in the institution. A general train-up taxonomy needs to be created then institutionalized by proponents for application in schools, units, and for self-development. It is important to recognize that each proponent may have unique needs based on distinctly different cultures in each branch.

Once done, there are important policy implications:

1. How can the taxonomy reinforce OPMS XXI? EPMS? Should all Career Fields and Career Management Fields (CF/CMF) follow the same train-up “rules”?
2. Should all components be expected to attain the same level of train-up? One could argue that for both ARNG and USAR, at least one part of their train-up is development of competence in tasks associated with service in support of State government or reinforcement of skills necessary to their progression in their civilian occupations. There is just so much time available. How should such necessary and useful citizen-soldier competence be recognized and supported?

Train-up as discussed here may appear to be a somewhat arcane issue not a pressing command challenge. It is not arcane. The Army is people—competent, motivated, diverse individuals increasingly accustomed to change and dedicated to winning in service to the nation. They are the center of gravity of the Army—far above the physical and mental cut of average young persons in the United States—creating the unique characteristic of the Army as a military Service. Looking to the future, how hard can these individuals be pushed—blue, to white and to gold collar? More seems intrinsically better to exploit a national advantage. As suggested above for young soldier leaders, should white- and gold-collar delineation come lower in grade in consideration of changing land power requirements? That is, should white collar come down to E7 perhaps E6 or E5? Should gold collar come down to O3 (lower today in Kosovo)?

But the first challenge is to further refine leader values, attributes, skills, and actions associated with each collar, then decide what train-up policy and practice should be established. The implications will be profound on the design of learning models for institution, unit, and self-development.

F. SCHOOL OR UNIT

Schools are “factories” driven to conserve resources through highly routinized learning as they prepare leaders. The good news is that really effective learning scenarios can be created, often drawing on insights and instructor experience from current operations or CTCs, in a necessary search for economies of scale to conserve resources. The focus of tactical learning is on science or process presented to the lowest common denominator of the homogeneous school group, such as recently commissioned officers or those selected for command. Success of the school is determined by task-based assessment of proficiency of the student before graduation or upon assignment to a unit. Measures of merit are almost exclusively process based.

The bad news is that today there is rarely opportunity for the institution to cultivate the art in individual leader development. There is truly much process to be taught. If there is time beyond training process, professional socialization and family quality of life are genuine needs in a stressed Army. Furthermore, process is quantifiable, measurable in task, condition, and standard; therefore, it is easier to define and justify in the perpetual struggle for resources.

The institutional bias is to train process. This bias needs to be modified so that leaders understand the role of art as part of their institutional learning experience at each level. Distance learning may provide an answer. To the extent that important tasks must be performed by teams anyway, the best venue for effective training in some process may in fact be the unit. If so, time could be freed to permit more learning of art in the institution.²² Some of this time should be dedicated to learning “how to” educate art in the unit while in the institution. For example:

- To realize the role of unit competence in generating vital self-confidence.
- Appreciate the power of cohesive teams.
- Understand why live fire is important in developing confidence.
- Realize that doing well and knowing it is key to self-confidence. (Doing very well at a CTC, the best of all).²³ The need to establish common team visions.

All this is really learned primarily in the unit but “how to” and “why” should be taught in the school. And what is “up to you” in self-development has to be taught.

²² But at an important cost in terms of diversion of use of time in the unit. More to follow on this very serious issue of allocation of time in units.

²³ Another aspect of the absolute necessity of tough CTC learning. Thanks to BG (R) Mullen, July 1999.

Officer exposure to peers with highly varied professional experiences in a school environment is very powerful learning.²⁴

Adaptive leader learning actually in the unit is substantially different than that possible in the school. There are practically no economies of scale in the unit. The environment in which both art and science are to grow is highly idiosyncratic, based upon the learning vision of the particular commander(s). Resources available to support learning, including personnel fill and turbulence, vary enormously from unit to unit. The most ready learning support is repetitive, highly process-based training in control in the MDMP. There are few measures of performance to assist the commander in assessment of the effectiveness of learning, particularly in the command art of war. The quality of learning and assessment support by the senior chain of command varies, depending upon other, often out of theater, demands on the very senior chain of command. Serving potential mentors are often in very short supply. It is therefore no surprise that development of "art" is stunted in many tactical units, and practically nonexistent for those potential leaders off in other organizations, rather than serving in tactical unit assignments.

There are important hybrids between school and unit. The most important today are the LTPs of the dirt CTCs and the seminars of the BCTP.²⁵ They combine the rigor of the factory carefully tailored to the unique requirements of the unit preparing for a CTC rotation. More could be done here, such as exporting the quality of the World Class OPFOR to support homestation learning.²⁶ Establishment of a similar serendipity between school and unit should be a major objective of distributed learning. Should this then be integrated with self-development? The Force XXI Training Program (FXXITP) is a start at providing bridging content.

School versus unit locale is an important choice in adaptive leader preparation. But there is a third alternative—too infrequently considered. This is self-development, which can draw on the strengths of the school (understanding why and how), with the precious experience resident in the units, to permit highly individualized development—reading, distance learning, and drawing on peers' experiences.

²⁴ Even more useful when there are students from other military services or countries.

²⁵ The early TRADOC Commanders Development Course (TCDC) brought unit command and staff to Leavenworth. This subsequently migrated to the LTPs at the CTCs as Leavenworth focused increasingly on individual leader development.

²⁶ Excellent observation by BG Chuck Swannack, September 1999.

G. SELF-DEVELOPMENT AND MENTORED (SUPPORTED) DEVELOPMENT

Self-development has been a traditional major support to leader learning. Professional reading is a bulwark in developing deep understanding of all of the variables of combat. There is a great history of nonresident instruction to support the Army's leaders. Now, advances in the understanding of training technologies have produced new opportunities for self and team learning with advanced distributed communications. To describe these new opportunities, I use the term mentored (supported) development as shorthand for these new structured, focused, learning capabilities.

New and emerging technologies enable highly sophisticated support for more self-development. CD-ROM and digital video disc (DVD) are here. The Combined Arms Training Strategy (CATS) acknowledges the importance of self-development. The Center of Army Lessons Learned (CALL) has established a commendable pattern of feedback from unit operations available to be drawn upon for highly current, topical, professional reading. Internet use is maturing rapidly under the governance of the University After Next (UAN) at Leavenworth—a major and vitally important initiative in learning.

These are all good actions. They reflect competent addressing of new capabilities. But I believe the potential of self-development is far greater. In fact, I suspect that the concept of self-development is about to become central, driving individual and team-leader development throughout one's service, including institution, unit, and highly diverse Career Field or CMF-related national program support.

Peer learning has always been important. However excellent or pedestrian a particular course at a particular school was, there has been consistent agreement among students that one of the best learning experiences (if not the best) was the opportunity to learn from peers, who came to the school with very different experiences. The range of diversity of peer experiences has expanded significantly as a byproduct of the scope and magnitude of Army service during the past 10 years. How to take advantage of it?

Traditional reading and self-generated, broadening experience, combined with learning from peers in structured learning environments, including school and unit, are likely to become the primary leader development means for both individual leaders and leader teams. Again, given the range of diverse experiences leaders face today, the best learning is likely to be structured peer learning. The range of individual leader (E5 to O4) experience present at the average TRADOC post is remarkable. How should this experience be captured and presented to peers, with the immediate credibility of peer learning? Should we create "war story" chat rooms?

Even better leader development occurs when leaders are provided just-in-time opportunities to learn what they desire when they want it. As WWW information and knowledge portals develop, it seems likely that there can be significant decentralization of content design to respond to immediate leader needs.

There is an excellent precedent in current TRADOC small group instruction with small group instructors (mentors) for learning in reasonably small groups (optimally 15 or fewer) under the watch of an experienced mentor. It works. Peer learning occurs, and the good get better. There is no better way to learn than to have to mentor others. How should mentoring be expanded for the future? Perhaps more critically, how should the Army spread the cost of providing experienced mentors? Could distance learning provide just that resource relief?

When distance = 0 (broadband Internet), an entirely new perspective of leader development can prevail. Proficiency can be defined as information (including experience) that must exist in personal memory, information maintained in a computer immediately available, and information available from the Internet. Self-development can focus primarily on that which must be in personal memory plus how to access the other two.

There are three broad learning situations which reflect varying levels of external support. They are the individuals in school work groups (sharing experiences as they learn in school-produced scenarios), individuals in units (sharing individual experiences and unit lore in addressing unit readiness training as part of a team), and individuals learning within the chosen career field or CMF, tutored by a coach or mentor or on their own (discussed below in near-continuous learning). This latter is yet to be established, but is an inevitable result of Internet communication combined with proponent capability to mentor individual leader development in the competencies associated with their shared functional area. Training support packages (TSP) and TES will need to be prepared for each of these learning situations with appropriate R&D support and analysis and assessment. This requires time and money, but then the point is that self-development is about to change the entire equation governing institutional and unit-based leader learning. Note that as self-development expands, more becomes supported. That is, the learning opportunity can be intensified by distributed provision of the infrastructure of the very successful CTC learning model—OPFOR, Instrumentation System, OC, and AAR, even as execution is decentralized.

An abiding problem with self-development remains—there is little stress or pressure present to influence the learning. It is very difficult for any commander or team at any echelon to put himself under intense, somewhat unpredictable stress, yet that is the environment of the battlefield. Even the best have to prepare under stress, well beyond their comfort levels.

Even more intense, effective learning is created by providing mentors able to offer timely feedback. Whether OC at a CTC, a small group instructor (SGI) at school, or a WWW advisor, informed feedback is highly desirable. This importance seems likely to be magnified in preparing adaptive leaders in the art of war. Detailed description of the why and how of change after the individual or leader teams have become committed to their solution is useful in training engineers' mastering process. It is absolutely vital to preparing artists' learning command because it permits timely insertion of second- or third-order effects, which in themselves create more what if or what then discussion by individuals or teams.

Of overarching import to both engineer and artist are the implicit pressure and stress available when a coach or mentor is present. The conscientious individual or team does not want to let an esteemed mentor (or each other) down. The mentor will naturally increase the difficulty, as he or she notes increasing understanding. This is a win-win for adaptive learning.

One objective of future leader development could be to eliminate any choice dictated by the locale of learning. Technology could be used to create commonplace, coached self-development for all leaders in America's Army—meshed across school, unit, and self-development. One way, "a way," this might be done is to link the TES/TSP through a mentor to the learner, either individual or team. Once there is an appropriate detailed scenario with exportable art-based vignettes, this learning content could be provided to the school student, through the staff group leader and to the individual or leader team in the unit, with the chain of command in a mentoring role. For a leader in self-development, the mentor could be provided by a school subject matter expert (SME). Last, infrequently perhaps, the mentor could be provided by execution of the vignette at a CTC where the mentor is an actual OC. There are many ways to amortize the investment costs in creating vignettes or in maintaining mentors (also known as small group leaders?) as the cost and return is spread across the Army.

As we have discussed above in self-development and in the preceding section on school and unit, it seems clear that new learning technologies have created a new learning paradigm. First, the old.

Traditionally, Army learning has consisted of individual and collective learning in the institution and in the unit. These four venues are indicated by numbers 1 to 4 in the diagram. Self-development was clearly present, represented in the Army Correspondence Course Program (ACCP) and the Chief of Staff's reading list for professional reading. But self-development was (and remains) not an organized, focused, learning effort. All of the learning was grouped as individual and collective learning. Learning by small teams was acknowledged to be important, but that aspect was included in collective training and generally ignored. Infantry or AFV crews were not ignored as teams, but cross talk between staff teams (S2, S3, FSO) or (XO, S1, S4), commander teams (brigade-battalion-company), or company commander "team" was generally overlooked. Yet identification, then preparation, of highly proficient adaptive leader teams is central to future learning.

Training Venues

	Institution Unit	
Individual	1	2
Collective	3	4

A new paradigm seems required—one which acknowledges both self-development and teams, as well as the traditional venues of individual and collective training in institution and unit. I propose the following.

I suggest that there are nine potential learning opportunities which should be exploited. These venues are indicated by the numbers 1 to 9 in the diagram. The most important today, because there is so little focus, are self-development (individual, team, and collective) and team learning in institution, self-development, and unit.²⁷ Three general observations pertain:

²⁷ Self-directed learning may be more descriptive of the venues than is self-development because the former portrays a much broader learning effort. (Verbal comment to Author by Dr Jack Hiller, October

- The emerging technologies of learning increase significantly both the opportunities and requirements for learning—from four (2×2) to nine (3×3) venues. Venues 5, 7, and 8 appear to be the most important of the new.
- *The importance of time increases as the single most valuable resource in leader preparation.* Time can certainly be used more effectively and efficiently, but there are finite limits on time availability in a peacetime family Army.
- Somebody has to be in charge of the overall allocation of time for leader-learning—practically a near-zero-sum situation. Less time on individual preparation in the institution probably means that more time must be allocated for self-development or to individual learning in the unit. I suggest that the best arbiter of time may be the branch or functional area proponent working for the strategic leadership of the Army.

Leader Learning Venues

	Self Dvmt		
	Institution		Unit
Individual	1	5	2
Team	6	7	8
Collective	3	9	4

H. PROFICIENCY OR SCHEDULE (TIME)-BASED

How is the learning to be designed? Clearly, the most effective learning, whether individual or group paced, is proficiency based. As soon as the tasks are trained, move on to new tasks for the engineer or to a new blank canvas (scenario) for the artist. Do not move on to new tasks until the content has been learned—by the individual (self-paced) or the team (group paced). But training support [Corps Battle Simulation (CBS) or Close Combat Tactical Trainer (CCTT), etc.] has to be scheduled, and resources need to be

1999.) This is an important issue acknowledging new opportunities enabled by distributed learning. Self-direction provides the opportunity to plan and schedule the learning yourself, whether individual, team, or collective learning. You are doing what you believe important when you need it, not what some higher headquarters has scheduled (structured) for you.

rationed. The tyranny of training schedules enforces daily, weekly, monthly, or quarterly learning events.

There are no easy answers here. The effective learning goal for training the processes of control is clearly task-proficiency based. So the learning program developer must realize that the efficiency usually characteristic of conscientious scheduling can be destructive of learning effectiveness. The technology of distributed learning needs to be molded to reduce this dysfunction, whether the learning is actually occurring distributed or not. Distribution, combined with emerging learning technologies, enables significant variety in learning programs. There is real ability to cut and paste content to individual or team learning requirements. For example, fewer prioritized tasks could be presented more frequently if there were very high leader turbulence and turnover in the unit. Much more difficult, ambiguous tasks could be presented if turnover were reduced and more time to learn were available. In either case, some learning could be allocated to self-development, if the requisite time were available.

Education in command also is and must remain proficiency based. Once common scenarios rich in vignette detail and learning cues are available to create a common leader "mind's eye" or vision, significant decentralization of learning should be possible. That should support proficiency basing. This becomes less difficult as more become fully familiar with common scenarios. Then, distributed WWW chat rooms become feasible, with or without mentors.

One answer to resolving these issues in concept and in practice is seamless integration of institutional, unit, and self-development learning. That is, increase efficiency of learning (low-overhead exercises) with close attention to the time required to execute the learning, drawing heavily on the emergent flexibility of distributed learning.

I. MIC AND/OR SASO OR...?

Which missions should be trained while developing adaptive leaders? Better several basic bread-and-butter MIC missions prepared exceedingly well than many missions prepared superficially (for familiarization).²⁸ The complexity of the current

²⁸ Another important aspect of concentration on MIC proficiency as baseline warfighting proficiency is the focus on traditional warfighting competencies—an understood, certain focus for leader learning—much as was provided by USAREUR General Defense Plan (GDP) terrain walks as the Army returned to basics in rebuilding after Vietnam.

operational environment is such that an understanding of the road to war is a precondition to learning (either art or science). In either case, high levels of individual or team proficiency require detailed scenarios which can be mined through various forms of TES to create cause and effect content for the trainer or mentor (OC or coach). Variety and detail are expensive. How much of either are affordable? Presumably, a sharing of scenario detail between school and unit could reduce the training support development cost for both. This detail must be provided across the range of traditional and non-traditional scenarios. An excellent start is rich detail in the five development scenarios of Strike Force.

Sharing of scenario detail also supports mutual understanding of a common context. If all the command or staff team leaders in the brigade or battalion (or advance course) know how the unit got where it is, discussion (learning) can immediately proceed to second- and third-order "what if," "what then" discussion. Learning is much more efficient and effective if there are fewer, much better known general scenarios.

The nature of the mission may influence design of the learning strategy, particularly as joint, combined, and civilian elements need to be represented. Everything becomes more complex. Choice of learning scenarios becomes very important as resources limit creation of the detail required to prepare necessarily complex learning scenarios. So rich common content detail has to be present so it can be mined. Clearly that future will require political, military, social, economic, and religious detail keyed to whatever focus and intensity of learning is required. The traditional horizon of BOSs is absolutely essential but too narrow when preparing for joint and combined operations. Rich scenarios have many predetermined branches or sequels that provide cues which lead the commander or leader team to increasingly complex and ambiguous situations, which are skillfully drawn in complex cause-effect sequences by the mentor. There are no approved solutions. An extraordinarily timely example would be the situation facing units in Kosovo, where a near blank slate exists in nearly every aspect of civil society.

What is an example of a rich scenario? An extract from a very recent personal e-mail from a unit staff leader in Kosovo follows (with deletions to protect specific identity).

A few nights ago in ____ we had a crowd of about 300 people surround one of our security points. Our soldiers called for assistance and we got to the scene. We were able to get tanks, Bradleys, MPs with dogs, loud speaker teams, and Apache helicopters for support. Most of the time we can "split" the crowd. On the ground we try to find the knuckleheads in charge and

tell them we will talk to two of them. Then we enter the crowd and get to the other side. This reorients the crowd in a 180-degree direction. Then we walk into the town or an area to opposite of where we want them to go. Some people begin to follow then we 'split' them. Before long the whole crowd dissolves and we get them to talk. Within an hour we may be drinking coffee with their leaders and working out problems.

But the other night was different. The people of ____, a town of a couple thousand, were rioting in the main road blocking traffic. They were upset because four of their men had been kidnapped and they wanted them back, even though they had no idea where they were kidnapped or any clues as to where we should start looking for them. This time the crowd had the old women up front, backed by the younger women. The older men were behind them with the young men on the flanks. The older women were disrespectful and rude. They were spitting and pushing on the soldiers. Our men showed incredible restraint and conducted themselves well.

We tried to convince the people to disperse by using the town leaders. This failed. We were able to convince the family of one kidnapped man to walk into the crowd with us. They agreed. We worked around the flank. The young men were reluctant to attack the family so we confused them and made our way through. Once on the other side I kept walking and eventually the crowd split. Within 15 minutes, we had the crowd off the streets and were talking it over in a private courtyard.

While the ____ crowds are still fairly civil, the ____ are becoming more difficult. The ____ incident was the first in raising the stakes with our soldiers. Last night in ____ we had to fire warning shots and today in ____ we had to do the same because they were throwing rocks and were laying hands (not in a biblical manner) on our soldiers. Once again, our men are showing good restraint.

Our final close call today was against a sniper team we had observing a troubled village. They ended up being invited to someone else's gunfight. An ____ gunman fired from a hill behind them. As the return fire rounds began to walk in on their position, they took a shot at one of the gunmen to protect themselves. Once compromised, they received fire and moved out to the extraction point. They followed the snipers. Our reaction force went to the site and came under fire as well. A gunfight ensued as they recovered the snipers. We quickly got an uparmored platoon of Hummvees there and they also came under fire as the other vehicles departed. Apaches were called and we also fired illumination rounds from a platoon of Paladins. All of our forces made it back.

Think how many ways this actual description could have gone from challenging to much worse, to and including involvement with the National Command Authority.

Food shortages, churches razed, contending political leadership on both sides, war crimes investigations, terrible weather precluding rapid reaction force (RRF), casualties, etc., could have occurred. The situation reeks with ambiguous implications in branches and sequels. This is a rich mineable scenario relating to SASO. Comparable detail is required for MIC, joint and combined. I suspect that the CALL/UAN could capture whatever is desired to initiate scenario ideas, should they be so guided. I hope this is occurring now in preparation of Joint Venture scenarios which represent a broad spectrum of potential conflict.

J. UNIT AND/OR TRADOC-FUNDED LEARNING

Who pays for what learning? Past practice quite properly placed the responsibility for the quality of unit learning with the unit commander. TRADOC was funded for the conduct of learning in the institution. Training development in support of learning in the unit was sporadic, in large measure dependent on material development community's understanding of what was required to support material fielding in a unit and recognition of a requirement for support of team learning. Now there is a significant, overdue effort to export institutional learning both for regional institutional learning and for unit learning. To proponents, export to the unit of traditional institutional learning may reduce the role of the school and thus the resources allocated to institutional learning; it may also reduce quality control of the product. These are understandable concerns borne in past practices.

Perhaps can be are other choices as a framework is established for adaptive learning of command and control for both individuals and teams. The best designers of effective, efficient learning are in TRADOC. Now, new technologies clearly enable the export of that quality learning, particularly task-based training in the science of control. A future choice might be for TRADOC to warrant effective individual and team learning of control in the unit—learning which can occur in a organizational or self-development context. Assessment of the effectiveness of the learning is an integral part of the traditional learning model. Is it desirable and feasible for the operational unit to reimburse TRADOC for demonstrated leader proficiency in the tasks associated with the processes of control?

Are there other funding choices enabled by new technologies and new leader learning approaches? If so, they should be built in to new learning models. For example, new options may be available particularly if proficiency evaluations are conducted in units. That rigor could permit deliberate sharing of the responsibilities of leader

development in the science of control between unit, school, and self-development. Each knows what the other is responsible for, and evaluation permits assessment of the extent to which responsibilities are being met.

K. LEARNING FOR DIVERSITY—TOTAL ARMY AND/OR JOINT/COMBINED/CIVILIAN

Given the likelihood of force commitment in both joint and combined environments, pure branch preparation of adaptive leaders seems undesirable above platoon echelon. At company and above are various combinations of cross BOS, joint, combined, and civilian involvement in the exercise of both command and control by the adaptive leader.

One of the Army's great strengths is diversity—race, religion, language, ethnic background and sex—of professionals and citizen soldiers working together to common purpose across the range of combat, CS, and CSS functions. The Army provides role models of professional excellence ready to influence local elites anywhere. Realization of that potential has been one of the very positive lessons learned from the Partnership for Peace. Now, more and more junior leaders appear responding particularly to the challenges of SASO: more deployable combat power. How do we take advantage of these strengths?

All components really face extraordinary diversity today. For active components, the challenges are joint, combined, and civilian organizations. For RC (ARNG), diversity comes with natural emergencies, domestic defense, drug suppression and other such Federal and State responsibilities in addition to tactical unit mission readiness. In all cases, there appears to be no appreciable difference in the leader preparation requirement between light, mounted and Special Operations forces. The challenge is that each is increasingly likely to deploy in task organizations with the other.

Such diversity can present a very tough learning issue based on the complexity of the force being prepared for commitment and how both school and unit prepare leaders as individuals and as members of ad hoc commander or staff leader teams in composite units formed to deploy. 1/16 Infantry training to deploy to Bosnia consisted of five line companies from three separate Divisions. The typical ARNG Separate Brigade deploys to a CTC with units from over 20 states. As force is projected, it is likely that there will be unexpected disparate unit add-ons to the troop list, including joint and combined units arriving in theater.

The greater the diversity, the more important the development of unifying common rules and procedures which simplify and standardize where it makes sense. More common routine enables focus on the exceptional to be ready for seizing and taking full advantage of unexpected opportunities. A fine example of useful standardization of procedures (such as vehicular check points) was the USAREUR white paper focused on SASO.

Considering the extraordinary diversity of current operations, processes of control simply must be simplified both to support responsive changes in task organizations and to permit leaders time to develop effective command teams. *If leaders are consumed in training process (control), there is little time left to educate in command.* Without common, uniform, mandated standard operating procedures (SOPs), highly diverse organizations are consumed in process, striving to become engineers *not* maturing as artists. The challenges to the learning system become almost insurmountable when there is no competency-based common framework of SOPs. Then add joint and combined. Fortunately there are dated NATO standardization agreements (STANAGS) influencing recent operations in the Balkans.

In sum, we should be quite suspicious of the level of individual and team competency attainable in complex Strike Force or other ad hoc hybrid organizations unless there are shared, competency-based (trained and evaluated) SOPs.²⁹ More common SOPs are better for joint and combined operations. Shared Rules of Engagement are shared SOPs of sorts but much more is needed if the focus of leader activity is to be the art of command. Where routine processes are involved (traditional sergeants' business), it is almost impossible to have too much commonality, including such detail as common loading plans. Once the process detail is mastered, the way is open for winning—in the art.

L. STRUCTURED AND/OR "FREE PLAY"

The issue here is the amount of control exercised over the set up, execution or outcome of tactical engagements designed to prepare the adaptive leader. As learning (training and education) has become more expensive in terms of cost, manpower, and time, learning events have become increasingly structured (1) to ensure that the stimuli desired to cause learning did in fact occur and (2) to provide the content supporting good

²⁹ There would appear to be other similar opportunities with increased use of common administrative SOPs. These are taught routinely in NCO training.

AARs with prepared OCs. Gradual increase in the difficulty of iterative events (crawl, walk, run) implies considerable control (structuring) of the fight to support the particular exercise being employed—command field exercise (CFX), fire coordination exercise (FCX) and command post exercise (CPX). Then there needs to be ability to vary mission, enemy, troops, terrain, time and civilian presence (METT-TC) or cues so that units at homestation cannot gain access to the scenario beforehand. There is no harm if the exercises which train the basics are known; in fact, demonstration of a way can support positive learning. But then the unexpected must appear, so that capability to respond to new, often unexpected, situations is shown. All of this is very complex to set up and to structure.

Training in control requires presentation of repetitive events (building blocks) which develop various aspects of desired task proficiency. Education in the art of command requires capability to present new, distinctly different variables, requiring the leader to adapt to be successful.

These are two distinctly different requirements, the former is black and white to cue process, the latter is gray to stimulate reflective second- and third-order reasoning, leading to timely decisions. I sense a family of answers which can support both structure for training control and apparent free-play for educating command. There is considerable range of choice. But both institution and unit need to realize that two complementary but different learning strategies are required for preparation of leaders at the tactical echelon.

Institution and unit also need to acknowledge a requirement for stimulating individual, team, or collective initiatives in conducting self-development or self-directed learning. Distributed learning enables beneficial decentralization. That enables “free-play” in selection of learning techniques.

M. OBJECTIVE vs. SUBJECTIVE EVALUATION AND SCORING

Criterion-referenced is “go, no go” based on objective evaluation generally scored pass-fail. Normative referenced is subjective, grading on the curve based on performance of the group above average, below average, etc., generally determined by the student scoring distribution. The former is absolutely applicable to the training of control, where specific task, condition, and standard can be established. The latter is essentially based on the subjective judgment of the instructor, coach, or mentor, who is aware of the total learning environment. It is clearly the choice for preparation in the art of command, where review of judgment becomes critical. Different questions are asked such as:

- How well were the new variables understood? When did the commander seem to misread the situation and why?
- Did teams understand intent? If not, where did the misunderstanding occur?
- Where did faulty process provide erroneous information to command or staff leader team?
- Did the commander have a solid understanding how to dominate a changing situation? What was really significant?
- Did the leader team appreciate the effects of refugees not being given information relevant to their situation?
- Was there underestimation of the impact of support provided to criminal investigators?

These are important, but highly subjective expert calls, which combine in the mind of the mentor to create a tapestry of impressions reflecting shades of better or worse in reflective thinking by the adaptive leader. Thus is created the grist for a mentor's assessment or review provided to the leader, normally privately.

In practice, objective evaluation and subjective assessment are not mutually exclusive, but choice within the range is quite important to achieving the command or control learning objectives. Control is evaluation to standard, objectively assessed. Command is subjective assessment, the product of highly expert impressions.³⁰

³⁰ Assessment of leaders' proficiency in command and control may be appropriate for application in OPMS XXI or successor personnel management programs. But this should be a distant objective achievable only after full professional assimilation.

IV. CREATING LEARNING OPPORTUNITIES— ENABLING “STRUCTURED PRACTICE”³¹

Practice is the key to the development of adaptive leaders. Extended practice affords not only the opportunity to understand better the complex interactions of the variables of combat, but it also provides opportunities for the various leader teams to discover together how to better work together to advantage digital capabilities. With that begins the process of developing mutual competence in team tasks, and equally important, developing mutual confidence and trust. But repetition without purpose consumes resources to uncertain effect. It must be focused to explicit learning purpose, be it control process or command instinct. It must be practice which is both so affordable and so doable in the average unit or institutional setting that tens of repetitions of selected combat actions are both desirable and genuinely feasible. And the practice must be purposeful, that is, designed so that the various scenarios, vignettes, and cues essential to causing learning to occur do in fact happen. The practice must be structured, then applied—in school, unit, and in self-development learning for individuals and teams of leaders—probably with one set of policies and programs to train control and another set to educate command. Creation of structured practice becomes the design specification for institutionalization of the adaptive learning capability for both staff leader and commander team builder.

The conduct of challenging, iterative, command and staff leader learning is just not possible unless simple, low-cost execution exercises are created to train vertical and horizontal command/staff teams across all battle functions as they manifest themselves in current and emerging asymmetrical operations. They must be turnkey, such that the team requiring training can enter a “fight” across a crawl, walk, run range of increasingly complex warfighting vignettes without extensive preparation. The stimulators to support the elements of whatever the unit’s digital information flow may be in speed as well as in usual battlefield friction must be turnkey. If the exercises are not low cost and turnkey, iterative experiential learning of individuals and small teams simply will not happen.

³¹ Concepts from Drs. Jim Lussier, Karol Ross, Dennis Leedom, and Jon Fallesen, ARI and ARL.

Meeting the requirements above is the practical long pole in America's Army routinely preparing adaptive leaders. I propose two candidate learning capabilities, which I believe should be used in trials in institutions and units during the next several years for training control and for educating command. The purpose of each learning capability is to present a wide array of tactical situations to leader commanders and key staff officers as individuals and as members of teams. The two candidates are (1) creation of a COFT-like ALL and (2) extension and expansion of the CFX/FCX methodologies.

First, a successful precedent exists in process learning methodology—a "learning machine" capable of supporting both the engineer and, to a much more limited extent, the artist aspects of the adaptive leader at the squad echelon. That precedent is the unit conduct of fire trainer (UCOFT) developed for Abrams and Bradley fielding.

The UCOFT is both AFV turret simulator and training machine. Under the supervision of a trained operator, the UCOFT leads the vehicle commander and gunner through a series of engagements. The scenarios are demanding in a crawl, walk, run sequence of increasing difficulty: stationary, then moving AFV, engage single, then multiple targets, despite reduced visibility, chemical attack and increasingly severe malfunctions of equipment. Performance is diagnosed based upon three measures of performance (such as reticle aim), then remedial training exercises are presented automatically to the trainees until the end training state (certification) is reached. Essentially complex diagnostic then remedial learning vignettes are built in to the machine. An OC observes, but selection of the learning sequence is integral to the simulator. It works. Successful performance on the UCOFT translates to success on AFV gunnery exercises. UCOFT (and skilled leaders) clearly prepared the highly competent AFV crews observed in Desert Storm.

The secret of COFT is the design of the matrix of battle vignettes and the increasing complexity of the situations presented through the cues. A similar approach could be applied to ALL. Rather than in a turret, the leader or leader team would be placed in reasonably comfortable surroundings with normal means of control available (maps, radio, computer screen, etc.). For initial trials, two general scenarios would be presented. One, describing MIC, would be the brigade/battalion-focused Force XXI Training Program (FXXITP). The second scenario would be a well-developed SASO scenario, perhaps from Joint Venture development. Leader trainees are expected to be very familiar with both scenarios—the road to war and the general flow of mission execution as presented in the scenario. Trainees could manipulate the TES (constructive or virtual) to move to any time or location in the scenario. Leaders would be presented

with a series of cues which would require their action/orders across METT-TC. Execution of the training would be quite similar to the current brigade/battalion commander phase of the TRADOC School of Command Preparation (SCP). In turn, leaders would be faced with prepackaged tactical challenges across each of the battlefield operating systems.³²

TSP for training the processes of planning (MDMP) and of execution are included in the FXXITP, in the battle staff training system (BSTS) and vignettes of battle staff exercises (BSE) and in brigade and below staff exercises (BBSE). Various FXXITP vignettes would be presented to the trainees who would be expected to act—to issue the appropriate order to subordinates or guidance to staff in response to the situations presented. Branches or sequels of the various scenarios would be built in to the ALL. In the future, some automatic diagnostic/remedial cue selection might be built, but initial cue selection would be by the unit leader or, preferably, a leader team OC.

After each iteration of a vignette, an AAR would be conducted consistent with current training doctrine.³³ OCs would be provided a detailed “Tips for the Trainer” that coached how to conduct an AAR for the particular vignette or cue. The OC would be encouraged to repeat the vignette with sufficient change to pose new learning issues (according to a preplanned menu of changes to METT-TC programmed into the TES and described to the OC). Roughly similar vignettes and cues would be prepared for the SASO scenario. This is common at the JRTC.

Next, prepare all of the above so that it can be distributed to a unit classroom or armory in turnkey form; then, iterations could be practiced to really improve current CTC performance. But all of this is control oriented. Almost entirely process based, it is the engineer’s dream. Perhaps necessary as a start for the basics of process, but seriously inadequate for the developing artist!

How must this methodology be modified to support solid learning of the art of command? First, the purpose of use is different. The essence of adaptive learning is development of the ability to understand the how and why across the variables of warfare, as much as the what that is learned through repetitive performance to standard, as described above in the ALL. Adaptive learning develops the leader’s ability to

³² Once the scenario is widely known, it seems highly likely that new cues could be presented manually, by an OC or mentor, in a sequence of crawl, walk, run (CWR)—just enough detail to stimulate the “mind’s eye.” Now a very high number of repetitions becomes both desirable and feasible.

³³ “A Leader’s Guide to After-Action Reviews,” TC 25-10, 30 September 1993.

understand, then anticipate, change in a world of increasing complexity—highly complex, ambiguous, simultaneous change.

So the first challenge is to complicate the learning scenario or learning theater. Each of the variables of combat discussed in doctrinal literature needs to be reviewed from the perspective of the range of challenge or friction which should be presented to leaders in the ALL by addition to the basic scenario. The current variables are geography; weather; capabilities, including joint and combined; strategies and tactics (TTP), including joint and combined; mission; civil/military operations; and time. These seem certain to evolve with conceptual thought in preparing for Army 2010.

To these, for purposes of transition to a trial ALL, I add threat—organized, terrorist, criminals; predictable, unpredictable; smart, dumb; seasoned, green. I also add change as a specific variable important at least for purposes of leader learning. Change can be predictable or unpredictable, likely or unlikely, rapid or slow, explicit or ambiguous, important or trivial to the leader's task/purpose. These variations of volatility, ambiguity, uncertainty, and complexity, are enhancements added to the FXXITP scenarios to start ALL development. An excellent example of necessary variations is presented above in the e-mail from Kosovo.

Basically, the training developer is creating “enriched” scenarios, vignettes, and cues modified to include as many of the variables of combat as desired. For example, add the following to the basic FXXITP Movement to Contact NTC Central Corridor scenario: deteriorating weather, allies not following orders, supply shortfalls, disease or casualties disrupting leader teams, enemy criminal actions, and highly critical media, with the rate of change increasing from sequential to multiple simultaneous changes—each a prepackaged add-on to the base scenario with appropriate OPFOR countertasks.

The work here is not the scenario modification. Rather, it is the development of appropriate guidance on mentoring the leaders to perceive, understand, then influence second- or third-order impacts. The tough job is to develop appropriate guidance for the mentor, who is *not* an OC—focused on “what” but rather a creative guide to understanding the complex interactions of combat variables. Tips for the mentor should address the following:

- Suggested sequence of introduction of variables—one, two, or three variables introduced in sequence or simultaneously
- Guidance as to the rate and magnitude of change to be introduced by the mentor

- Time provided to the leader or leader team to think/respond
- AAR guidance to the mentor based on how and why various actions occurred (interrelationships of the variables of combat) and how a different outcome could have been created—not just what was done. It is absolutely necessary to develop the leader's vision of the desired outcome, then discuss realization of that vision—both good and bad. This is not the detailed description of any specific outcome as much as how and why they developed and how the outcome might have been changed by the leader or leader team.

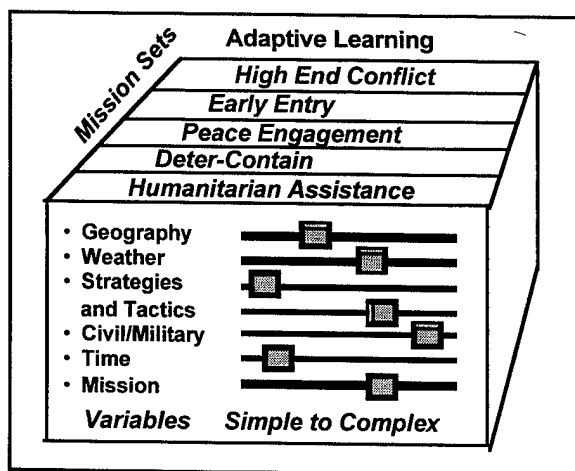
This is different—new techniques for preparation of OC (mentor) seem required to conduct such a review of the art of command. Development of such capable mentors appears now to be primarily by natural evolution, as CTC OCs mature by experiential learning from focus on control to understanding of issues of command, after about four or five rotations as an OC at a CTC. But there may be a separate set of skills not really understood but serendipitously developed at CTCs. This needs more research. The creation and sustainment of mentors for school and unit and support of self-development is very important.

In any event, forming the counsel of the mentor and then stimulating the subsequent discussion of alternative outcomes with the adaptive leader or leader team is the abiding purpose of the ALL. The mentor discusses the two or three most significant events of execution relating to the variables of combat being learned. A quick summary of what happened is followed by extensive discussion of how and why it happened and what the alternatives were to better shape the outcome to the vision and will of the adaptive leader. Focus is not on what, but rather on how and why in the context of the vision of the outcome desired by the leader. The mentor has been provided a suggested prioritized list of “what if” and “what now” questions based on the particular scenario branch or sequel suggested in the “Tips to the Mentor.” But that is no more than a launch pad for stimulating the discussion of cause and effect which should follow.

This is a new, different AAR drawing on the “what” techniques of TC 25-10, but shifting the focus to “why” and “how,” shifting from training process to educating command. Why did the events occur? How could they have been anticipated, then modified to better fulfill the leader's vision of the desired outcome? The mentor is relatively much more important in this learning than the OC when the focus is on “what.”

The engineer's AAR follows events. The artist's AAR follows thoughts—"why you decided what you decided."³⁴ *These are fundamentally different learning strategies.*³⁵

TLS Task Force PERSPECTIVE "Adaptive Leader Learner"



There is considerable "structuring" here—perhaps too much—but it is necessary initially to ensure that the ALL as distributed is understood particularly by candidate coaches. After all, 50 percent of all of us are below average. Structure should decrease considerably as institution and unit understand the science (control) and art (command) complementary learning strategies.

The amount of detail should be reduced considerably as learning focuses, more and more on the art of command. The artist needs less detail to stimulate the mind's eye—imagination—than does the engineer. In fact, once rich scenarios have been developed such as is being done for Joint Venture, they can be mined for the artist's content in ALL. Cues can be as sparse as a photo or a spot report or a televised interview to stimulate effective learning.³⁶ Think of varying cues much as changing settings on a hi-fi tuner as in the diagram above. The value of a shared, rich, detailed scenario to the

³⁴ Observation by COL Rick Lynch, former Commander 1st Bde, 4ID, in commenting on the draft white paper, July 1999.

³⁵ There is, of course, more than just knowing oneself. Solid work had been done in the development of leaders practicing Battle Command at the "dirt" CTCs by MG Russ Honore, as Infantry OC Team leader, COL (R) Mike Shaler, and many excellent Commanders, Operations Group, over the years.

³⁶ Fine examples are the AAN SWG vignettes, "Snapshots in Time"; force deployment to early entry operations; decisive operations (include complex and urban terrain); and SASO in a mature theater. How should we capture and export this interaction?

imaginations of artists is beyond description—solid gold for effective adaptive learning for all leaders and leader teams—commanders and staff principals.

Now, to return to the UCFT precedent. The UCFT cell (vignette with appropriate cue) becomes the leader trainer vignette cell. Presentation of vignettes and cues can be done much as in the UCFT. There are three new axes of assessment: (1) complexity of situation by variable of combat, (2) rate and magnitude of change to the situation, and (3) time available for the leader to decide/act. Each of the variables of combat is presented in several levels of complexity alone and in combination with other variables—probably framed as branches and sequels of the base scenario. Manual insertions seem likely initially, with a potential to automate for the basic learning scenarios.

Learning does not stop upon leaving the COFT. Extension of the ALL learning experience into pervasive, continuing self-development is part of the learning methodology. Once families of scenario-based vignettes and cues are developed and guidance for mentors can be built in (“Tips for the Trainer”) the mentors (themselves commanders?) learn too—just as OCs learn in the CTC model. Remember, teaching others, particularly really competent “others” with rich experiential background, is perhaps the absolute best learning. The learning strategy is to create understanding of what learning is required so that individual and team self-development will continue in the unit—directed at current likely Force Projection scenarios and variables of combat.

Call this structured self and team development. It is capitalizing on the intensity of the learning support of the ALL to provide focus and content to continuing learning, grouped or distributed, based upon continued mining of the scenario content. This continuing self and mutual team development can be supported at the tactical, operational, and strategic echelons. The mind’s eye ensures active, not passive, learning. Add a contemporary reading (viewing) list encouraging individual and/or group study (book club) and you have a powerful distributed learning capability, which by its nature will be exceedingly responsive to change. Perhaps this could be a CALL/UAN responsibility?

The second approach to institutionalization of adaptive learning is extension and expansion of the CFX/FCX methodologies. These exercises were developed in Europe during the cold war as a way to permit units to exercise their GDP. The CFX reduced maneuver costs and maneuver damage when full armored units maneuvered on the terrain. Essentially, headquarters went to the field, down to company echelon. Platoons

were represented by one AFV each. The number of AFV was reduced, but there were still sufficient vehicles to generate the friction missing when CPXs were conducted.

The FCX-trained integration of direct and indirect fires consistent with command intent. Small-caliber rifle (later MILES) represented direct fire, one weapon per platoon or company. Similarly, one indirect fire sub caliber device represented a mortar platoon or a direct support artillery firing battery. All normal command and control had to be accomplished, resulting in convergence of direct and indirect fire on a subcaliber range when changing and unexpected enemy situations were presented as map symbols on pop-up targets. Target arrays were changed frequently to reflect the conditions expected on the battlefield.

Both exercises were designed to provide opportunities for reduced-cost training exercises. The major pay off of this exercise capability was possession of a locally adjustable and practical way to train repetitively the various combinations of actions-reactions characteristic of highly ambiguous situations. It just takes a lot of “what if” iterations for a commander team to work through the permutations and combinations of complex situations—really learning to understand then master different types of complexity as they go. CFX/FCX provided this capability.

This methodology seems absolutely applicable for creating learning situations for adaptive leaders. The variable in the CFX was reduced AFV; all other cues remained. For the FCX it was full munition live fire, which had to be substituted. In neither case was essential friction omitted from the learning experience. Those exercises were created to overcome cold war GDP training constraints. Today, the learning requirements are different. Leader time must be conserved. Exercises need to be amenable to whatever level of digital command and control technology enablers are present in the unit. They need to present complex, ambiguous environments characterized by multiple, simultaneous changing military, geopolitical, and civil situations. The Army is familiar with these types of exercises, having recently prepared leaders for SASO in MRE as well as excellent training evaluation outlines prepared initially by USAREUR. The JRTC is currently in process of applying FCX methodology to MOUT training to provide an opportunity for leader teams to practice fire-support coordination iteratively before attacking Shugart-Gordon. More is better.

To prepare artists, replace the COFT-like ALL discussed above with a multimedia MILIST drawn from a rich common scenario, with suitable “Tips for the Mentor” how to draw out “what if” and “what then” discussion. Suggest how the product can be modified

in a battle simulation center to support learning on a scenario of local mission interest. One Kosovo scenario was discussed above. At a higher echelon of command, think of the ambiguity present early in the occupation of Kosovo when the Russians suddenly occupied the Pristina Airport. Lots of good ideas for the artist creating vignettes and cues likely from those with recent Balkan experience. Engineers can be prepared by drawing on the local learning content of the TRADOC DLS, particularly both steps one and two, which are clearly applicable, whatever the local level of digitization. Excellent work in this area is being done now by TRADOC in preparation of Joint Venture scenarios.

I suspect that these exercises, comparable in concept to the original FCXs designed to train direct-indirect fire coordination under stress in a highly fluid combat situation, will be the most effective leader team learning asset in future units. It would seem to be a key responsibility of the appropriate proponent to provide turnkey exercises which permit individual and teamed commanders and staff leaders to learn. The COFT precedent can be applied such that the individual or team learns not just "what" but also "how" and "why." The examples above were the CFX and the FCX. There are other exercises very useful to leader learning such as the combined arms live-fire exercise (CALFEX) or any LF exercise. Because of safety concerns, they need to be control-biased but LF establishes excellent friction for rich experiences which can be drawn upon later. And successful LF execution is a boon to self-confidence.

To conserve unit time, learning exercises should be laid out in detail with "Tips for the Trainer" suggesting the best practice for increasing the difficulty by (1) varying the variables of combat presented and (2) varying the magnitude and simultaneity of change and the time available to respond. Both individual and teams of leaders (commanders and staff) are presented increasingly complex cause-effect relationships across the variables of combat. Ideally, innovative design of exercises will begin in the school and be practiced in pre-command courses (PCCs)—then exported by new commanders into units. Again, it is essential that scenarios be varied sufficiently so that there can be no on-post "canned" solutions.

But most important, the advanced learning described above does not have to await the discovery of an ALL. Knowing what needs to be done, local leaders can invent their own response much as the CFX and FCX were developed by past adaptive leaders. The critical path would appear to be the development of rich common scenarios which can be mined repetitively by commanders, staff leaders, OCs, or mentors.

That describes a way to create the learning exercises which will be required. They should accommodate the rather broad array of learning policy and program choices discussed above. But they will be effective only if they blend and in fact contribute to sustainment of effective, efficient continuing learning of both command and control. Important for sustaining individual leader competence, it is mandatory for leader teams. Content and delivery of structured practice need to be constructed to support effective learning (education and training) and quality control. They must support conduct of distributed institutional learning and self-development. Then, self-learning and self-assessment must be linked back through structured practice to external assessment of skill proficiency of individuals and, if feasible, of leader teams in tasks associated with control. This is a challenging learning problem, but one that is eased considerably if there is evaluation of the control aspects! What is required is an internal, informal evaluation of all learning and an external evaluation of the most important control tasks. Perhaps for the really important unit-control-dominated missions, there should be formal evaluation. For example, formal two echelon up evaluation encouraged for an Air Assault battalion hot LZ for the command team or for hasty in-stride battalion breach for mounted forces.

Now, the second challenge: actually designing or building the needed capability, consisting of several elements, and absolutely adaptable to change. The elements are the DLS proposed to and accepted by TRADOC in September 1998 and by FORSCOM for mounted MIC learning in April 1999. The DLS has been expanded in the proposed Learning Strategy for Strike Force Headquarters prepared for the TLS Task Force December 1998—April 1999. This paper extends both DLS and Strike Force strategy to broader Joint Venture development by proposing specific ground rules for building required leader (both command or staff leaders) proficiency. These are presented as possible additions to FM 25-100 addressing both command and control. Then, links between DLS and learning in both command (art) and control (science) are discussed to address potential institutional and unit learning models

V. FOUNDATIONS IN DEVELOPING OPERATIONAL LEADERS

I have described the adaptive leader then developed the range of learning strategy choices available. Then, this paper described a way to construct appropriate exercises to be used to develop adaptive leaders and teams in unit and school. Implementation of both will be influenced by two bedrock statements of Army learning doctrine. They are the doctrinal manual, Army Training FM 25-100, and the DLS promulgated by TRADOC to address digitization of the One Army.

A. CURRENT TRAINING DOCTRINE

FM 25-100 is the lodestone for Army training. It is necessary but requires expansion for the future. Basic principles endure and are applicable to the design of future operational leader preparation. There are four absolutely central principles:

1. Use Performance-Oriented Training

"Soldiers learn best by doing, using a hands-on approach," FM 25-100, p. 1-4. This establishes the fundamental basis for current Army learning. Originally conceptualized primarily for individual soldier training, the principle has subsequently been applied successfully to leader and battle command and staff training in CTCs.

2. Train to Challenge

"Tough, realistic, and intellectually challenging training both excites and motivates soldiers and leaders," FM 25-100, p. 1-4. This affirms the necessity to train hard and, if possible, to over-train to combat conditions. When preparing leaders for the future, training must require demanding, highly competent performance in increasingly ambiguous tactical situations—situations where change is sought, not feared. In addition, training to challenge establishes an environment more likely to attract and retain quality volunteer soldiers.

3. Train to Sustain Proficiency

"...sustain skills to high standards often enough to prevent skill decay and to train new people," FM 25-100, p. 1-4. Train not according to a predetermined schedule;

rather, train when soldiers—individuals and teams—require training to gain or sustain task proficiency. For dominant adaptive leaders facing complex ambiguous situations, the competence and confidence required of individuals and of command and staff teams will mandate near-continuous self-preparation and team preparation.

4. Assess Training

“Evaluation is integral to training,” FM 25-100, p. 5-1. All training is in fact evaluation—informal or formal, internal or external. All and any evaluation is a training (learning) experience. Tough, uncompromising review by senior chain of command, OCs, mentors and peers is an essential part of learning. Advantage it but remember, in art there can be no approved solutions—no task, condition, standard (TCS) marks on the wall. Rather, there are shared judgments between leader and mentor as to the relative merits of alternative ways to attain the envisioned end state.

New or elaborating guidance seems appropriate for FM 25-100 in setting the course for development of new learning models for institution, unit and self-development. Continuity with the past and proven is clearly necessary but not sufficient. Times have changed since FM 25-100 was promulgated. Turbulence and turnover are more prevalent and more disruptive. The battle rhythm and predictability of focus on the cold war threat is gone, replaced by the complexity of MIC and SASO. No professional development focus remains like the GDP terrain walk provided during the Cold War. Functionally unbalanced ad hoc hybrid organizations are deployed routinely. The importance of leader teams emerges as a byproduct of increased information sharing. New technologies make much greater distributed learning both desirable and feasible. The CTC model of learning (particularly OC and AAR effects on learning) has now been assimilated in the One Army—a unique national advantage. In sum, these are significant changes which mandate revision of the bedrock Army learning doctrine.

As observed recently by CG TRADOC, new forces are acting which place a premium on highly adaptive “leaders capable of synchronizing combat power, taking prudent risk, teaming with a wide variety of units, agencies, and organizations, and capable of making critical decisions across a wider array of situations than ever before.”³⁷ This vision encompasses widespread use of digital command and control

³⁷ E-mail, Gen J. Abrams to F. J. Brown, 7 May 1999.

technology enablers. Thus, it is appropriate to address the learning implications for the adaptive leader of digitization, as currently embedded in the TRADOC DLS.

B. SUPPORTING ADAPTIVE LEADERS IN FULLY DIGITIZED UNITS

The TRADOC Digital Learning Strategy (DLS) addresses directly learning strategies for individuals, teams, and units, described as necessary learning steps one to three. Indirectly, it addresses preparation of adaptive leaders and leader teams competent in the exercise of both command and control. The two efforts need to be linked explicitly to ensure that fully adaptive leaders are prepared as fully digitized units become high-performing organizations.

First, the steps in the DLS:³⁸

Step One: The objective of step one is to become proficient in the “basics.” It involves knowing the Military Decision Making Process (MDMP)—plan, prepare, execute—for battle command/staff learning. It requires demonstrating a basic proficiency in gunnery and tactical tables for armored fighting vehicles. It demands that one be proficient in the tasks, conditions and standards (TCS) of the individual or small group and be both competent and confident in execution of basic unit warfighting missions—platoon to battalion—in movement to contact, deliberate defense and deliberate attack...

Step Two: The objective of step two is to become proficient in the tasks, conditions, and standards of both the hardware and software of “digitization” in the execution of a tactical warfighting scenario. Task proficiency should encompass vertical and horizontal Battle Command/Staff Training (BCST), at both the individual and team levels. This creates tactical situational awareness both horizontally by echelon and vertically by Battlefield Operating System (function)...

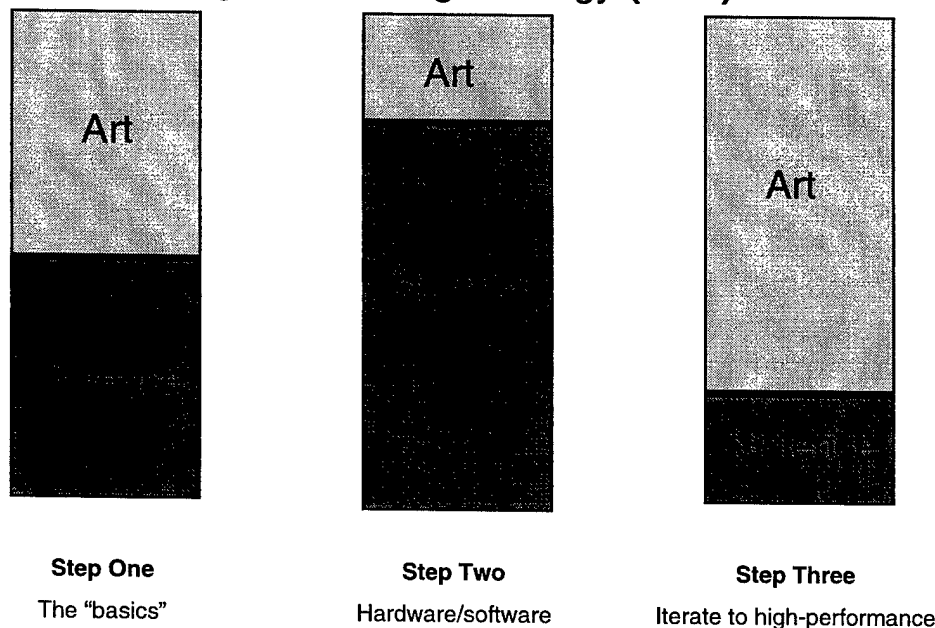
Step Three: The objective of step three is to develop highly adaptive, “hyper-proficient” individuals, small teams, leaders, and units competent and confident to perform current and anticipated new Army XXI missions differently, advantaging their increased situational awareness to an objective state of tactical situational dominance. At this highest “hyper-proficient” level of proficiency, high performance organizations are discovering new ways to do new things—executing, modifying, and redoing. They are improving things as they go along through reflective thought combined with interactive, intense, immersion-based experimental

³⁸ TRADOC, “TRADOC Digital Learning Strategy/Digital Division Learning Program,” 28 September 1998.

observation, then by execution. They routinely modify tactics, techniques and procedures (TTP) as greater situational awareness develops. The desired outcome is significant refinement and improvement in TTP of tactical mission execution as individuals, teams, leaders and units become increasingly competent and confident at the mastery level of proficiency (or above), creating situational dominance over the enemy.

The specific objective of step three learning in the institution is hyper-proficient individuals who know how to create and sustain hyper-proficient teams and ultimately units. For units, the specific objective of step three learning is the sustainment of hyper-proficient individuals, teams, leaders and small units despite combat and peacetime turbulence and turnover...

“Art” and “Science” in the Digital Learning Strategy (DLS)



Now, how should education in the art of command and training in the science of control of the adaptive leader fit in to these steps? That is, what is the ratio of training command to training control for each step of DLS? I propose the following as general guidance:

In step one the ratio should be about 50/50. That is, when introducing basics, learning priority should be divided about equally between command and control for leaders as individuals and as members of command and staff leader teams. MDMP, as discussed in the DLS, is almost exclusively regarded as process—control—today. Equal emphasis is clearly necessary in the “why” and “how” associated with command. Lest

this appear too neutral to advantaging digitization, recall that step one is really learning well the skills, knowledge, and attributes (SKA) associated with normal Total Force leader preparation. 50/50 seems to be a prudent initial objective for step one across the force. Art is present in some degree at every echelon for the officer and the noncommissioned officer.

Step two, on the other hand, is largely control rather than command—80-percent control to 20-percent command. All leaders need to master both hardware and software—almost as the multiplication tables were learned in the past. Some content should be learned in the institution, some in the unit. This is not quite rote learning but close, so that there is deep abiding personal appreciation of the processes of digitization. Step two changes; however, in units whose command and control capabilities are commercial-off-the-shelf (COTS) computers and networks. There is no training in the institution—each division is unique. New personnel have to be trained from scratch. Genuine step two under these circumstances becomes an unending requirement.

This ratio is reversed in step three: 80-percent command to 20-percent control as “artists” learn how best to draw on digital technology enablers creating, then sustaining, adaptive leader teams possessing shared competence, shared visions of what will happen, why it will happen, and how to change (adapt) to make the shared vision become reality.

Whether or not these are precise ratios, they are close. That means there should be significant differences in both policies and programs between step two and step three learning. Learning models for institutional and unit use clearly need to address both command and control for each step of the DLS. In step three learning, the combination of attaining very high levels of proficiency and new forms of conflict will present new and probably unpredictable uses of digital technologies. The 20-percent science included in step three is to permit mastery of these changes. It seems likely, however, that step three learning will not require extensive on-ABCS (Army Battle Command System) learning. Other, easier, mind’s eye cues should suffice to stimulate necessary learning.

VI. GENERAL LEARNING MODEL GUIDANCE

Given learning choices, opportunities, and existent foundations, what should be the explicit guidance-molding design of the unit, institutional, and self-development leader learning models? The focus is leader learning, but that cannot occur in isolation from team and small unit training. Therefore the guidance below includes team and small unit training as required to explain the leader learning context.

A. INCREASE EXPERIENTIAL LEARNING

Army potential for learning by doing has grown exponentially during the past two decades. A vision of training young soldiers faster, better by letting them learn hands on in conditions as close as possible to those of combat has become a multibillion dollar infrastructure capable of representing warfighting for individuals, teams, and organizations from squad to corps. The Army can literally recreate practically every aspect of combat except actual injury and even there, substitution (mouflage) is highly believable. That is, the Army actually can create the challenging situation in some form of training aids, devices, simulation and substitution (TADSS) and see what happens again and again as leaders learn through immersive repetition the more complex interactions expressed so easily in METT-TC.³⁹

Incorporate stress with the TES. It must be endemic. Stress in learning is absolutely necessary to prepare, sustain, in fact enhance physical and mental attributes when the going gets really tough. The Army demands leaders across all career fields who are accustomed to stress. Tough leaders expecting the absolute worst but absolutely self-confident in their ability to prevail. More on this vital aspect to follow.

No other landpower force has or even approaches this experiential learning capability suited for preparing SKA of both command and control which, increasingly, can be distributed across America's Army with, in time, essential quality control. This is a vital strategic advantage which should be exploited. The bad news is that there are

³⁹ And, by inspection, derive the values, attributes, skills, and actions of leaders as individuals and as teams—another example of the great power of the ability to learn by doing which is uniquely available to the Army due to the TES investments.

important deficiencies in simulation—relative ease of cross-forward-line-of-troops (FLOT) operations, lack of friction in ground maneuver, and over-reliability of tactical communications are several. Repetitive, experiential learning of the wrong lessons is a significant danger. OCs and mentors need to be very sensitive to this.

Today, some 50 to 70 percent of this considerable infrastructure of training support (TADSS including TES—live, virtual, and constructive) and training programs is engaged (perhaps less if the potential of 24 hour per day, 7 days per week utilization is considered, and even less when the allocation of TADSS to educate and train leaders in planning-process rather than execution-substance is factored in). This is not to criticize units stretched in commitments with constrained operations tempo (OPTEMPO), facing endemic turbulence and turnover with no predictable battle rhythm of explicit mission essential task list (METL) to focus learning, all of which are serious challenges. Rather, it is to point out that there is highly sophisticated, idle training capacity available to support significant increases in leader, staff, and unit learning. The unused capability is even greater if the TADSS were considered to be a primary vehicle to be employed for leader preparation (both education in command and training in control) in increasingly challenging, ambiguous tactical situations.—”What now Brigade Commander or Division G-3?” Great existent untapped learning capability!

Perhaps more valuable than the physical infrastructure is genuine Army assimilation (understanding) of the advanced, highly intensive learning model of the CTCs—the OPFOR, OC, AAR and instrumentation system. This understanding has recently extended to the mission readiness exercises (MRE), which draw on CTC methodologies and resources to create highly effective mission pretraining to compensate for inadequate prior training. Hands down, the most powerful tactical learning environment for leaders, staffs, and units today is the CTC rotation. It is tough, relentless, tactical immersion-based experiential learning. Yet today, this extraordinary learning experience is almost incidental to leader professional development—hopefully, once a command tour at a CTC. It is nonexistent to the combat support or combat service support Brigade Commander. He or she and their leader subordinates are almost as likely to participate in joint task force (JTF) operations as their combat compatriots. This is not a satisfactory situation for preparing adaptive leaders.

Clearly the friction there at the CTC is best, but the methodologies should be harnessed through distributed execution so all colonel commanders have a near-equivalent learning opportunity. Understanding of the CTC model plus the growing capability to distribute learning should make such rigorous learning commonplace at

home station, armory, or for self-development of leaders. Add the power of translation of CTC-created mind's eye understanding of friction to home station or to kitchen table actually at home. The CTC methodology (and derivatives) has potential to be the pre-eminent leader learning experience. At the end of the day the real power for effective learning resides in home-station training. The CTCs confirm new and better learning TTP for implementation at home station. That, coordinated among proponents, is helpful, but the primary objective must be the effective institutionalization of these new TES and TTP at the various home stations.

So the challenge is to intensify (improve) that known leader learning model and extend it into institutional, self-development, and home station training. The task is to translate superb CTC learning practices and existing infrastructure into a One Army *where all learning is experiential*—learning by doing. Nowhere is there greater capability which can be matched with genuine need than in the preparation of leaders.

Why is not all of the tactical instruction in a captain's career course achieved either "fighting" as a company commander or executing the responsibilities of each of the staff officers in turn in a fight which never ends. It just gets tougher as conditions deteriorate and unwelcome change in the variables of combat is introduced. The model—fight, AAR, fight, AAR, fight, AAR—should begin on CTC terrain initially, with emphasis on the challenges of both command and control. It is best if all of this repetitive learning could be on the ground in the dirt. It is better if it occurs after the student has had an opportunity to fight in the dirt [perhaps as part of a temporary unit in the OPFOR receiving guidance from an officer or NCO practicing OC skills in a reserve training support brigade (TSB)]. It is good if it occurs as fighting in virtual simulation after immersion in field crafts at home station, which for institutional learning is the proponent school. There would appear to be numerous effective variations available to introduce the CTC experiential learning model during institutional professional development. Even better, the student can be introduced to understanding of both command art and control science as the foci of learning are shifted from control (what) to command (why and how). This is absolutely applicable to the CSS leader who may be already be facing many of the challenges yet to come to much of the Army—multifunctional leaders, dramatically changing doctrine, extraordinary reliance on effective distributed information, to mention several. That is why these leaders need the same learning strategy attention as the combat leaders.

Then, why could not this example of "learning by doing" be translated to brigade and battalion leaders and staffs preparing for a CTC rotation? In this situation, the

immersion in friction could be achieved at the CTC LTP. The purpose of LTP should be not to train MDMP or other process, but to provide practical “learning by doing” friction to enhance the learning value of subsequent repetitive home station training in control and education in command from LTP to actual rotation. What LTP could be doing is translating individual’s relearning of schoolhouse or personal self-development, as well as unit team learning of tactical processes which has been occurring at home station (with the FXXITP initially for mounted forces) to the friction of terrain and weather plus the uncertainty of an ambiguous enemy and other variables of combat. Then they could add the art—exposure to significant variables of combat, particularly mission, TTP, capabilities, and time—always changing, somewhat ambiguous, ever-complex—situations which are not solely the routine MIC BOSs, but with really different and changing threats clearly targeted at our vulnerabilities. These challenges can, and should, be blended into both MIC and SASO learning.

The CTC LTP cannot provide this kind of intense structured leader learning if the unit has not trained the basics at home station. The MDMP has elements of both command and control. Command and staff just have to know it to be able to take shortcuts responding to the kinds of vignettes described above—as expressed in step one of the DLS. What units do in preparation for attendance at LTP clearly has to be subject to explicit understandings between the corps and division commanders and the CTC commanders, with oversight by the various proponents.

There are lots of ways to learn by doing both art and science once a decision is made to capitalize on both existent TADSS infrastructure and assimilation of CTC learning methodologies. For example, there are at least two alternative ways of learning by doing which are incorporated in the TRADOC DLS:

1. Traditional performance-oriented training train to the test incorporated in steps one and two as currently embedded in the FXXITP and subsequent derivative exercises framed to train the basics (crawl). In this case, learn by doing is to observe another leader, staff, or unit perform the task or mission to standard (a way) then go perform it to standard yourself. This is clearly useful for mastering the basics, particularly process. Once basic proficiency is demonstrated, execute again and again to different, much more challenging conditions. The individual or team is doing two things here. They are (1) confirming proficiency in the processes of MDMP (plan, prepare, execute) and (2) observing then discussing increasingly challenging METT–TC which accustom the leaders to deal with uncertainty and unpredictability. This accustoming can also be set up in turnkey tactical exercises (What now ____?) to be trained again and again at home station

drawing on the mind's eye of the LTP experience. These exercises could be set up in the CFX/FCX mode as proposed or as other good exercises invented by units.

2. Crawl, walk, run (CWR) modification of cues as methodology for step three—with common context whenever possible to conserve leader time. Here, learning by doing is repetitive execution of the task to increasingly challenging conditions presented in increasingly unpredictable ways in various tactical vignettes requiring individual and command/staff teams to act rapidly, thinking through more complex tactical situations with a very uncooperative and unpredictable enemy. No “a way” or demonstration. Discover (learn how and why the variables of combat change) as you iterate hopefully with the support of OCs (control) and mentors (command) counseling in an AAR setting—the CTC model applied locally. You are learning as an individual or more likely, you are learning as a member of a command or staff team. This seems applicable whether in unit or institution and perhaps, with modifications mandated by distribution, to some self-development.

This experiential learning approach is at the heart of the suggested ALL as well as the evolving School of Command Preparation (SCP) 2000 at Fort Leavenworth. The challenge is to fully convert that experiential learning model from reinforcement of knowledge of process to preparation to deal with uncertainty, ambiguity, and omnipresent change in the variables of combat. In SCP, learn both substance and “how to” preparing subordinates. Thus, iterative execution may serve to educate the art of war by teaching not only how and why to the artist but also by training nearly simultaneously the science of war—crawl, walk, run.

Implicit in the examples above is fine-tuning the DLS to accommodate changing conditions of warfare. Step one “crawl” is learning processes, including essential command and staff drills again and again to near mastery. It is learned in the institution, partially in school, and partially in nonresident distributed practice “graded” by the school. Then step one “walk” introduces application of the processes to unpredictably changing elements of METT-TC (combat variables). Execution-based step one “run” presents asymmetric, highly complex, ambiguous variations to the basic learning scenarios. All actions then are execution-based, roughly balanced between training control and educating command. Step two is unchanged, largely control (80-percent control, 20-percent command). Step three is the second example above—primarily command (80-percent command, 20-percent control).

Should the future Army leader and staff team preparation guidance be that in time (10 years?) all leader tactical learning is to be near-continuous experiential learning accomplished in institution, unit, and self-development?

B. ENSURE STRESS IN LEARNING

Warfighting is stress. Programs preparing leaders must repetitively incorporate battle-friction, uncertainty, continuing change (both good and bad), and highly ambiguous situations—stress. For commander and staff leader learning, the stress needs to be both vertical and horizontal. Vertical stress reflects the tasks and purposes of the chain of command one and two echelons higher, such as other competing requirements at division or brigade which cause the battalion commander to perceive unclear or internally conflicting guidance. It also could be the press of competing priorities of the division artillery commander and battalion artillery commander leaning on the battalion FSO or conflicting guidance regarding force protection. To this, add national or international conflicts in guidance in SASO—support to refugees, influencing local government, molding local media, or even flexing combat power to demonstrate commanding presence.

Horizontal stress reflects the competing requirements at one echelon across functions. Within a unit staff, this could be the tension between intelligence, operations, and logistic support. Across organizations, horizontal stress could be the competition for priority engineer or fire support across maneuver battalions as well as unpredictable changes in capabilities

The point is, combat is stress—never enough support; it is an unpredictable, unhelpful enemy doing strange things; it is competing requirements from seniors; it is Murphy's law at every turn; and it is being always short of time. This stress must be included as early in the learning process as possible, so that the adaptive leader team (commanders or staff leaders) is both confident in anticipating change and competent to handle it, consistent with task and purpose of the chain of command. Quasi-combat at the CTC should seem easy after the rigor of home station preparation. Precisely the reverse occurs today. The scramble to recover from the shocks of the CTC friction impairs mentoring in many units. A genuinely significant individual and team learning opportunity is severely compromised because there was simply not enough tactical

friction present in home station training.⁴⁰ Even a highly motivated and capable commander simply cannot create within his headquarters/staff the training conditions and pressure/friction required to achieve advanced learning.

I suggest that leaders really need to think through the different kinds of stress to be addressed as they prepare leader learning programs. There appear to be at least two kinds of stress, each appropriate to its own situation. Control stress is making things happen despite friction. Usually, control stress involves actually getting complex events to happen as they were intended. Getting the right combination of objects (AFV or infantry soldiers or ammunition) at the right place at the right time doing the right thing. This is difficult to achieve unimpeded; it is even more difficult if limited visibility, NBC has been employed, the enemy intervenes, etc. To create the proper environment, control stress usually needs objects, real or provided through TES, as learning aides.

The second stress is thought stress presenting different challenging situations to the mind's eye, figure out what you want to happen (vision), then decide how to enable despite new challenges. Most of this latter stress does not require additional funding or personnel (objects). Rather, it just requires loading the mind's eye with a photo, a message, or a staged conversation—a cue. It may require much more time, though. In any event, some very valuable stress requires no funds or people, just highly competent artists in design creating powerful cues, then solid counsel for the user how to mold decision, then reflection into effective learning.

These observations do not invalidate the overarching necessity of self-development by all leaders of whatever rank or position. They do suggest, however, that once the largely process basics have been understood by individuals and teams and applied tactically at a crawl using some form of TES (grouped and distributed) to ensure practical learning, then serious friction (preplanned and random change to each of the variables of land combat) needs to be introduced to all subsequent iterative learning. By step three, situations should be not only ambiguous but also they should require increasing depth of understanding of the complexities of the variables of combat—terrain, weather, enemy, battle functions, joint/combined warfighting, and civil-military operations. This rigorous unit training should be demonstrated by example in the institution for leaders and leader teams at all echelons. And it must be sufficiently

⁴⁰ This can happen at the CTC too. For example, RSOI at the NTC is clearly necessary training on flowing into theater which has become a consuming fight to get out into the desert because of deteriorating equipment in the draw yard.

challenging when conducted in the unit that it creates a thirst for increased professional self-development.

At brigade echelon and below, the experiential learning focus should be competence and confidence in advantaging change during highly stressful, near-continuous execution *not*, competence in planning and more planning in an attempt to eliminate unexpected change. Focus on command under stress, not more control.

C. NEAR-CONTINUOUS LEARNING

I suspect that the entire rationale used to develop and enable Army learning may be changing from sporadic and sequential learning largely centered on schools to continuous and integrated learning across all domains and locales. Recall that there are nine potential venues for leader learning. There are both new requirements and new capabilities for *continuous* learning—literally for continuous training and education of leaders as individuals and as teams in the science and art of war. Requirements multiply—new potential commitment situations, new individual leaders, and new vertical or horizontal leader teams are created frequently if not almost weekly due to ever-changing mission planning and personnel turbulence, turnover, and attrition. New teams need learning to develop genuine team proficiencies. In addition, there is new relevant knowledge to be acquired by individuals as grade and personal experience increase. All learning requirements are intensified during the exigencies of actual commitment. At the same time, new technologies permit near-global dissemination of effective learning. Continuous learning becomes both desirable and feasible. Should satisfaction of continuous learning requirements not be a new baseline measure for judging new learning models?

When does this learning start? I suspect that it is with precommissioning, at least in the art of the profession. Values are enduring. From service to self to service beyond self to nation and duty, honor, country are those particularly relevant to me but there are others, equally important. These are values which some evidence would suggest are less present in young soldiers or officers today when initially entering military service. My interest in the context of the start of leader learning is that I believe the art of command is soundly based in understanding, then accepting these professional values. Lieutenants are serving in Kosovo on the front line of responsibility for reintegrating Serbs and Albanians in a rugged mountain area, with winter coming. They are shouldering responsibilities that are inevitably military, political, economic, and social. At last resort, their decisions are not based on the SKA acquired from their officers' basic course

experience! It is their family upbringing, their abiding knowledge and understanding of Army values, and the art guidance they receive from their leader team at company and battalion, blended with the accumulated experience of their platoon sergeant. Art has to begin very early today. Probably more learning, earlier, will be required with what appear to be challenges of the future.⁴¹

Current Army learning is sequential—categorized then designed effectively and sensibly to occur as events in places—school, unit, or through leader self-development, wherever he or she might be—in a prescribed, thoughtful, developmental sequence. A substantial infrastructure supports several different learning environments. This infrastructure tends to group learning requirements by funding source (major command jurisdiction), then design learning programs appropriate to the respective locale and learning compartment being supported. The CCC compartment prepares company/battery/troop commanders and brigade/battalion battle captains, no more, no less. CCC is a unique learning experience. There is no specific “road to war” content link to what was taught in the basic course for platoon leaders or subsequently in the Combined Arms and Services Staff School (CAS3) for staff officers.⁴² There is no link to what is expected to be taught how, when the new commander joins his/her team of XO/2IC, FIST, and first sergeant in a maneuver unit. These are currently independent, unconnected, learning experiences. The good news is that links are being established gradually from institution to unit. Battle captain course content is now placed on CD-ROM for distributed learning. The mounted force now has the Force XXI Training Program. But this is learning as an independent event not tied to any comprehensive continuous learning strategy for unit or self-development.

Learning practices vary greatly across the Total Army. Homogeneous student audiences and quantitative learning requirements of schools create one set of learning practices such as student work groups studying common “problems” at the command and staff college or the small group instructor (SGI) team at a captain’s career course. These practices seldom fit unit learning capabilities. Each unit is seen as a separate, distinct learning challenge. Heterogeneous unit command and staff leader learning mandates other sets of learning practices designed locally to respond to local unit needs.

⁴¹ Thanks to MG John Abizaid for this perspective. Excellent innovative learning policies are being developed by TRADOC Cadet Command for ROTC application. Discussion CG Cadet Command, September 1999.

⁴² There are, however, excellent examples of involving various officer and NCO simultaneously in common tactical exercises.

There are some economies of scale in the institution as common programs of instruction (POI) are shared across schools and distributed through the Total Army School System (TASS) to Reserve Forces. These economies increase as common material is prepared for the Army Distance Learning Program (ADLP). However, lacking much common learning policy guidance or common learning content support, learning practices remain highly idiosyncratic in units. Few economies of scale exist here.

Lastly, self-development is really left to the time and motivation of the individual leader. There are few leader team self-development learning programs in concept or in practice.

In all cases, learning is highly sequential (event-based) with some content left as just in time learning during predeployment to contingency operations or in preparation for a CTC rotation. Variations in learning policy and practice abound—and reinforce the sporadic, sequential nature of much leader learning.

Change which mandates new learning is continuous and enduring, not sporadic and transitory. There are changes in the bodies of knowledge to be learned as well as changes in education practices as communications (Internet) erode the impact of separation of leaders as individuals or as teams. For example, learning can now be shaped to a distributed CTC-type learning model drawing on mentors for education and OCs for training—wherever learning audience or mentor may be located. And it appears highly likely that leader hyper-proficiency can only be sustained with near-continuous learning, perhaps expressed as an extended DLS step three.

An excellent example of responsiveness to change is underway at Fort Leavenworth in design of intermediate level education (ILE) for officers pursuant to OPMS XXI. Common core instruction will be conducted at several locales with supplementary distributed instruction responsive to functional area specialization. The current ILE plan uses distributed learning responding to very sensible direction in the OPMS XXI ILE Vision to provide “right education, right officer, right time.” I would add leader (officer, warrant officer, civilian, and NCO), rather than just commissioned officer.

Why should these practices be limited to institutional training at prescribed periods in a leader’s development? The thought should apply in a continuum of individual or team learning content (training in science, education in art) from accession to completion of service at whatever grade, wherever the leader is located.

Is this impractical? Not really, if one accepts the implications of the revolutionary "e-business" change the Internet is bringing to U.S. industry today.⁴³ This change affects not just the high technology Internet industries like Cisco, Dell, and IBM, but Wal-Mart, or Citigroup, and Ford. Whether or not there is a genuinely new economy, it is clear that new factors apply in assessing economic growth. Virtual organizations thrive across the factors of production, as primary producers share information with suppliers and customers. Major corporations maintain and advantage current databases equal to or larger than those which could be associated with tracking Army leader proficiency as individuals or as teams. Army leaders are digitized. Most OPMS personal preference statements come in through the Internet. Computers become less and less expensive as they become more powerful. Some Internet service providers will give users a computer in exchange for agreeing to use that provider for a set period of time at a set rate. Broadband mixed media is coming. Multiple virtual organizations thrive across the globe, connected by networks of increasing capability.

The Army could track individual or team requirements and accomplishments today if it wished. It can create virtual organizations as it wants. Many exist today, such as West Point classes' chat rooms, or, more to the learning point, MOS 33 graduates of Huachuca receiving repair counsel from the school experts. Other possibilities include former student work groups at Leavenworth sharing experiences for the following several years, etc. Nurturing of virtual organizations (complete with mentors or coaches) is limited only by imagination—or learning requirement.⁴⁴

As is being realized in Joint Venture development, staff sections need to meet in person much less frequently when they confer with distributed white boards. It does not appear to make much difference whether they are separated by yards or hundreds of miles, and there are no indications to date that such virtual teams are less capable than those grouped in a crowded staff van or track in a unit. Or a staff group at Leavenworth compared to the same group assembled by "white board"? So from a learning perspective, what is the difference between distributed or grouped schools, units, or individuals (or teams) for self-development when the distance separating individuals effectively equals zero?

⁴³ For excellent discussion of evolving e-business, see "A Survey of Business and the Internet," *The Economist*, 26 June 1999.

⁴⁴ The psychology of "zero defects" can be corrosive to mentoring. After all, if I "need" a mentor, I must not be perfect!

When distance disappears during the next 5 years (as it will), substantial changes in current policies and practices of leader preparation become feasible and probably desirable. Several examples follow of new perspectives of the purposes of school, unit, and self- development in OPMS functional areas in a suggested objective, near-continuous networked learning environment.⁴⁵

1. Purposes of Institutional Leader Learning

Educate values, attributes, skills, and actions (VASA) of leaders and train task to condition and standard when the content can be taught *only* when students are physically grouped and where economies of scale clearly pertain such as initial training on very capital-intensive equipment.

- Learn how to learn (train and educate) in the tactical or support unit environment using new learning and communications technologies in applications of the DLS.
- Learn from experiences of other students of same and other branches. At higher levels, learn from students of other Services, federal organizations, nations, NGO, and PVO.
- Promote socialization with peers in public service to nation.
- Encourage family time—support of family unit and educate “how to” relax.
- Support continuous learning/mentoring by career field linked by Internet, common scenarios, and common quality control of OCs/mentors. Link school courses.

2. Purposes of Unit Leader Learning

- Develop and sustain individual proficiency in leader VASA.
- Develop and maintain group proficiency of leader teams (commanders and staff leaders).
- Provide the environment supporting individual and leader team self-development. The unit is the crucible which molds the VASA of leaders as individuals and as team members—the critical seasoning locale.

3. Purposes of Self-Development (Ubiquitous, All Locales, Near Continuous)

- “Learn up” one to three echelons.

⁴⁵ New policies and programs should be explained in institutional learning so that leaders understand the what, why, and how of near-continuous learning before they experience it in units.

- Provide the overall learning context for individual development in institution, unit or career field/CMF.

Note that much of the learning effort is in the unit or occurs in self-development, coached by the institution. The institutions prepare content, teach how to and instill (confirm) values of service to nation. They become the lodestones of competence in the various Career Fields (CF) (Functional Areas [FA]) for officers or career management field (CMF) (Military Occupational Specialties [MOS]) for noncommissioned officers.

The schools sponsor FA or MOS-related broadband mixed media chat rooms addressing selected FA or MOS subjects. “What now” common exercises are conducted—synchronous or asynchronous for leaders as individuals or as members of teams (commanders or staff leaders). Senior is expected to mentor or coach junior (two or three grades junior). General Officers in the CFs are expected to mentor O5 and O6, O6 mentor O4s—presumably reflecting experience in the appropriate FA. Assessment is an integral part of this learning.

These are the kinds of learning opportunities opening up today. They are perfectly suited to a globally disposed quality force. There are tough cultural issues here: How obtrusive is assessment? Where does the time for self-development come from? How are the various components of leader development related? How is quality control maintained? Perhaps most important for now, though, is that this or a similar vision influence current policies and programs, and most important, the design of learning models. For example, the purpose of the ADLP cannot be to distribute classroom instruction. It should be to support near-continuous learning, most of which will be in the unit, or self-development largely within CF or CMF. This is a rather different perspective.

Leader Learning Venues

	Self Dvmt		
	Institution		Unit
Individual	1	5	2
Team	6	7	8
Collective	3	9	4

But where is the governance of all these leader preparation suggestions to come from? Who referees within and between the nine venues of learning now available through new learning technologies? How much individual learning can be exported from the school to the unit without degrading unit readiness or preempting the time required for necessary team learning in the unit? Each of the nine venues is tied to the other. What has to give when new learning challenges and opportunities arise (like the Digital Learning Strategy [DLS] for ABCS)? How is leader time allocated by whom?

I suggest that the proponent is in charge—responsible and accountable for his/her branch or functional area to the collective strategic leadership of the Army. AR 5-22 *The Army Proponent System*, 3 October 1986 establishes the precedent for charging the Proponent with responsibility for design and review of execution of leader learning in organization (unit), institution and self-development, as appropriate, given evolving Army requirements and the Branch or FA requirements of the proponent. In sum, the proponent must ensure responsible allocation of time for leader development between and among institution, unit, self-development and family. They have been similarly empowered in the past.⁴⁶

This may be less difficult to achieve than it might appear, if requisite authority and responsibility is re-delegated to the Proponent. The diversity of development challenge across combat, combat support and combat service support is significant. Each proponent faces a different challenge. Broad guidance moderated with regular review (Functional Area Assessment) should provide appropriate stewardship. The branch team (brigade and battalion Commanders plus school leadership) could be expected to prepare guidance allocating leader time among learning venues. This plan, prepared by all the branch leaders, could then be briefed to appropriate Corps Commanders for tactical command approval.

There are many ways to go about this, but some such focus of authority and responsibility for the use of leader preparation time across institution, unit, and self-development is essential if the potential of emerging technologies is to be realized.

⁴⁶ One reason for the significant personnel development successes of the Sergeant Major Academy (SMA) supporting the Noncommissioned Officers Corps has been the existence of an effective and powerful NCO proponent network culminating with the Sergeant Major of the Army.

D. EXPLOIT CTC LEARNING MODEL

I opened the door at the NTC as DCST TRADOC in the early 1980's, then intensified the experience as mounted force proponent for almost 4 years—supported by very competent leaders at the NTC. The now familiar OCs, AAR, OPFOR, and embryo instrumentation system (IS) envisaged by GEN DePuy and MG Gorman created a startling training opportunity. However, as really good as this methodology is—and it is—there has been no reduction whatsoever in the fundamental responsibility of the commander to train his or her command at every echelon. CTC aides are really helpful but they do not replace or relieve fundamental command responsibility to train. They exist to support commanders.

The dirt CTCs are much better leader learning opportunities today than they were in the early 1980's. Astute OC ability to modify the learning cues has created remarkable learning. Senior OCs know what, how, and why to modify battlefield cues to reinforce teaching points. Good is rewarded, bad is punished, and there is a vital contest of will between the friendly and threat force. The will to win encourages great focus on the OPFOR which is why the presentation of an ambiguous diverse threat at the CTCs is so important—and powerful—in causing the field Army to respond to new threats. The enemy and OC/mentors are the most powerful aspects of the CTC learning model.

As the overall CTC experience has become sophisticated, so has the concept of the OC. All three dirt CTCs have evolved subtle variations in the OCs role, as the OC interacts nearly continuously with the unit chain of command. At Operational Test of multiple integrated laser engagement system (MILES), of OCs, and of AARs at Castellan, Germany, in 1978, the OC was essentially a passive presence, observing unit performance, then providing an AAR as a vehicle to stimulate excellent discovery learning by the chain of command. Twenty years of good ideas later, OCs mentor, train, and coach. Practices vary among dirt CTCs and with the training philosophy of the individual CG and Commander, Operations Group, but, in general, the different roles of the OC today are the following:

- *Mentor*: thoughtful suggestions as to possible application of doctrine to commanders in the conduct of operations.
- *Train*: if it is clear that a unit just does not know how to function, the OC will step in and train what should be done—privately to the key individuals and occasionally more publicly to a small group.
- *Coach*: if the unit does not know, does not care, or when there may be imminent safety implications, the OC may step in with heavy coaching,

practically assuming aspects of tactical command by telling the unit what to do until the difficult period is passed.⁴⁷

These OC practices are useful, and they continue to evolve and improve as leaders improve techniques of leader development such as battle command and 360-degree assessment. It is a good news story of continuing evolution of quality training which is clearly available to support learning by adaptive leaders. This good news needs to be fed back into the institution so that it can be passed on to future leaders.

There has been increasing realization of the learning power of threat and OC observation linked to subsequent modification of cues to cause individual/unit discovery self-learning. For example, OC modification of tactical cues (battle conditions) to punish incorrect behavior with increasing severity—so the individual leader learns by doing what succeeds. All is achieved after very low-key but effective coordination between the CTC Operations Group and the unit chain of command. There remains considerable room for improvement of focus on leader ability to understand, to mold variables of combat to reinforce, not degrade, success in an environment of continuing change.

A serious challenge today is that CTC learning power has become much more focused on training control (processes of planning) rather than educating command (effective execution in an environment of continuing change which demands adaptive leaders in order to win).⁴⁸ The “CTC machine” is alive and well, but retuning is required to sustain training in control while increasing significantly education in command.

Several examples follow, but they should be considered by realizing that conditions applicable at a CTC may be simply unaffordable at home station. For example the CTCs execute AARs sequentially by echelon. That amount of time is unaffordable at many units’ home station. Simultaneous multi-echelon AARs are necessary. Nor may the OCs be as well prepared and mentoring can be highly idiosyncratic. But there is still great learning potential.

Exportation of a broadened CTC methodology to institution and unit that addresses preparing both command and control on CTC terrain/scenarios could permit the following:

⁴⁷ This is an impressionistic summary based on extensive observations. The terminology is not uniform from one CTC to another, nor should it be unless there is specific need. This is art in learning, still evolving and improving.

⁴⁸ In defense of the CTC, most OCs affirm that they want to focus on art, but the units are so deficient in science, such as MDMP knowledge, when they arrive that the OCs must focus on fixing process.

- Quite precise variation of the nature and intensity of operations (METT-TC) consistent with learning objectives of both training and education. Draw on OC lore in adjusting scenarios to ensure that the ambiguities and asymmetries of current operations are present, in fact accentuated. Reinforce scenario adjusting with consistent fine tuning of the OPFOR threat presented—a threat which can assume not only military, but also political and social facets—and reinforce economic issues by presenting situations requiring the chain of command to be sensitive to economic issues. Then augment this with unpredictable local allies and conflicting guidance from supporting civilian organization (PVO and NGO).
- Advantage the flexibility of TES (STOW) by presenting common scenarios with built-in vignettes, and provide cues appropriate to the METT-TC being trained to permit repetition, presumably to a crawl, walk, run sequence of increasing difficulty and ambiguity. Meter the leader (command or staff) challenge so it is always a bit tougher than the leader appears prepared to handle. Vary the scenarios (cause and effect) so that the leader is led to appreciate how and why combat variables change in a manner similar to the methodology proposed in the ALL and employed in the CFX/FCX-type exercises.
- Create the increased intensity of learning provided when there is near-perfect knowledge of individual, small team, or unit mistakes (by OCs) combined with the capability to show consequences directly (battle outcomes directly influenced by the individual, small team, or small unit mistake), as well as indirectly through an AAR. Fine tune the level of stress by modifying mission, enemy, or time available. Again, between SWA/NEA, Kosovo, and scenario development for Strike Force, there should be ample scenario examples.

Each of the above is an example of the increased sophistication of commander leader and staff leader learning of both control what and of command why and how which is possible through broader use of the CTC model—test, fix, test—a continuously evolving model proofed in subsequent wider application.

This CTC methodology could be merged into all unit and institutional training in such manner as to intensify learning by adaptive leaders. Several examples of how this can be done follow. The first is an example drawing on actual practice.

1. *Example:* 1CD MRE that draws on the CTC methodology to create highly effective training at Fort Hood. Based on thoughtful analysis of Combat Maneuver Training Center (CMTC) practice and JRTC, cue responses were carefully metered to intensify leader learning in highly ambiguous conditions with local OCs assisted by the JRTC. Very expensive, however. A brigade

required to train a brigade. Alert, train, deploy, *not* train, alert, deploy! Wrong but a necessary sequence due to resource shortfalls.

2. *Example:* Use the CTC LTP to improve effectiveness/efficiency of BCST at home station. FXXITP is crawl at home station, have LTP sponsor a CTC-imposed walk, run to the same scenarios to introduce actual friction (stress), and significant uncertainties to the FXXITP scenarios. Add “Tips to Trainer” for creating more intense BCST that draws on increasingly complex cues in order to support training occurring between LTP and rotation for the unit to take back to home station. In addition, shared friction context/experience will have been created at the LTP. These shared LTP experiences can be drawn upon to improve the training back at home station in “what now” brown bag sessions conducted by the chain of command to educate leader teams in individual and team ability to deal with uncertainty.
3. *Example:* Fight armor and/or infantry advance courses for two or three missions at NTC as a Panzer Lehr unit (students fill all key battalion positions); OCs could be contract OCs (Wranglers), plus include small group instructors from OAC. This provides NTC learning plus common context for balance of tactical instruction at Knox and subsequent learning in the unit. It is clearly best done on the ground in a CFX mode. When context of actual friction is established, iterate crawl, walk, run. Thus, both control and command could be stretched to provide shared quasi-combat experiences to be drawn upon repetitively in subsequent institutional instruction. Practically, this creates the common context of a very rich scenario for subsequent institutional use—grouped or distributed. And it could provide a superb training aid how to train leader teams in the unit.

Preparation for, then execution of, contingency deployments (MRE) can provide valuable learning opportunities as learning adjuncts to CTC rotations particularly as CTC practices are employed both in preparation and during the deployment itself. Immediate, highly credible mission focus while on deployments away from distractions of family presence provides highly focused, really valuable, learning opportunities.

These are just several examples of really powerful leader learning that is possible by drawing on CTC practices. How should these be exported and shaped to accommodate the diverse learning environments at home stations for light, mounted, and SOF? Or should these examples be brought into institutional learning, possibly into distributed individual leader self-development under the governance of a branch mentor?⁴⁹

⁴⁹ Selection then continuous education of mentors will be very important. Fortunately there should be many retired leaders (former CTC OCs) available.

E. FOSTER COMMANDER-DOMINANT DIGITAL ORGANIZATIONS

In addition to the adaptive leader skills discussed above, personal observation of Force XXI Army warfighting experiments (AWEs) suggests that the commander of a fully digital force must be (1) a highly experienced (seasoned) leader, (2) people-oriented versus technical- or process-oriented, (3) highly flexible and must remain so under pressure, (4) extremely multitask capable, and (5) tactically and technically proficient at least one level (probably two) above his current level of command. These are perhaps novel combinations but certainly not a new form of leadership

The issue of command dominance is broader than competence of individual commanders prepared to win in highly ambiguous situations. Teams of flexible, adaptive commanders become more relatively important than teams of staff leaders as the tempo of tactical operations picks up. Command teams are both vertical (brigade commander to battalion commander to company commander) and horizontal (cross talk between brigade combat team battalion commanders). Sharing a deep understanding of the senior commander's task and purpose is more important than ever. There is a clear need to focus repetitive learning on these vertical and horizontal commander teams. Learning should focus both on subjects of likely commander interest in TTP of mission accomplishment and on developing command "bonding" under tactical stress thriving on change associated with the art of command (expected and unexpected, clear and confusing, both good and bad). All echelons need to be subject to varying stress from higher chains of command during all phases of commander leader and staff leader learning—one to three echelons higher presented using digital support such as white boards.

This commander teaming or dominance in no way reduces the need for command and staff teaming of staff principles—battalion S-3s with the brigade S-3, S-4s with the brigade S-4 and support battalion. This aspect of learning comes out when commander fights from the locale he will occupy during the actual fight. That separated learning environment is essential to effective learning.⁵⁰

These sorts of teaming arrangements can develop through repetitive exposure to demanding tactical situations where change and uncertainty are commonplace and where the leaders, both individual and team, are presented an increasing flow of unfiltered information. There is an abiding need for provision of developmental digital learning situations which can be created repetitively in TES to minimize the impact of predictable

⁵⁰ Observation of COL Rick Lynch, August 1999.

(desirable) idiosyncratic commander behavior. This is doable through common exposure to repetitive CWR tactical exercises, currently feasible in both MIC and SASO. In the future, it will be feasible in the scenarios developed for Joint Venture. Further, the learning situations should stimulate leader self-development. They should stimulate a craving to know more about every aspect of METT-TC. These stimuli should be built in to the ALL with Internet links to more ambiguous cause-effect vignettes, which could be shared with mentors for self-development or team development.

In summary, it is useful to recall that digital command and control technology enablers seem certain to exert an important influence on command and staff relationships. This point was made well by Dr. Jon Fallesen, ARI, recently:

...the commander has to be competent in warfighting (or other mission requirements) and not as we have often heard in the past—a great leader who can make up tactical shortcomings by surrounding himself with a competent staff. During execution those warfighting skills need to be instinctive—intuitive, if you will—but their development probably comes from careful, intensive study, analysis, and practice (at least for most). The commander, if developed appropriately, ought to have the greater experience, more finely tuned judgment, and broader sense of understanding BOSs. The commander must be more open to counsel and cautions than ever before because the staff is likely to have been able to pick up some critical insight into unforeseen difficulties or possibilities from emerging digital capabilities. Both the staff and commander are more instrumental to the process with greater support capabilities.⁵¹

But the dominant influence is and will remain the commanders, particularly in highly ambiguous situations. It is they who must decide and be prepared to operate “off the map sheet” as required in a milieu of shared competence, confidence, vision, and trust within the team they have nurtured.

F. CONSERVE TACTICAL LEADER TIME

This is a truism but one which becomes central to gaining then sustaining leader tactical proficiency. Command challenges increase post cold war. Commanders need to be tactically and technically competent in an increasing range of missions—now expressed as both MIC and SASO then Strike Force to Army 2010. Requisite levels of competency are gained only through experience in various positions combined with

⁵¹ E-mail, Dr. Jon J. Fallesen to F.J. Brown, 27 April 1999. Comments based on mutual observation of garrison, field training, and CTCs.

reflective self-development. Both demand leader time. Leaders need to be fully proficient in the hardware and software of digitization (step two DLS). In Joint Venture, personal leader proficiency may have to be considerably higher as there are few operators present in constrained organizations. And leaders at all echelons are responsible to maintain an attractive "family Army" as commitments increase. Leaders just need lots of time to learn then relearn (refresh) variables of combat as operations become more complex.

Time requirements are seldom quantified. Dollars and personnel to support developing and sustaining highly capable brigade and battalion leaders (commanders and staff leaders) can be reallocated to respond to new requirements. Time, though, is finite. There is always a bit more available for the important new cause, but always at a real cost in time no longer devoted to some other activity. Time is the most precious resource, but many seem to assume it is a free resource. For example, issues related to the ADLP normally address dollar and people costs to prepare course material but not the time cost to incorporate the learning into local schedules. This is not necessarily a problem when the course is to replace some portion of existing school instruction, but if the learning is to occur in a unit, what is the unit expected to give up to accommodate this new requirement? Who keeps track of the time balance sheet for the unit—other than the local unit commander already severely pressed by other well-intentioned but unresourced demands on individual or group time? A serious omission for individuals becomes more serious for team learning and is absolutely undocumented.

As expanded distribution means permit near-unrestricted reallocation of learning (training and education) between institution, unit, and self-development, somebody has to be in charge, budgeting time available for the individual soldier, wherever he or she may be. I suggest this should be the TRADOC branch proponent.

How the time is allocated is important too. For example, having 7- to 10-day continuous training then a 4-day long weekend, may be better than two 5-day sessions with weekend break. In the latter, momentum of learning is lost Friday, then has to be regained on Monday. Approaching the issue as 10,4 not 5,2,5,2 provides better, more productive learning, improved QOL, and perhaps retention—all of which are ever-present command challenges. It is even better if time can be predictably allocated so the chain of command can develop a battle rhythm of unit activity.⁵²

⁵² The enormous value of battle rhythm is apparent in the certainty of the training schedule at the CTCs which the OPFOR units can and do advantage. Certainty and predictability are terribly important to

Therefore, it is imperative that consideration then conservation of leader time be part of any learning program. Intensification of learning such as is permitted by using common context or the creation of low-overhead turnkey tactical exercises to gain and sustain high performance despite ever-changing staff teams is absolutely essential to maintaining force readiness not just because they are effective, but because they also offer the prospect of conserving leader time. More time-conserving TTP are required, such as common basic tactical SOPs or encouragement of increased reliance on the noncommissioned officers corps for the execution to standard of daily tasks. It is hard to see how repetition in learning of command competencies can be achieved unless full use is made of an extraordinarily competent noncommissioned officers corps.

Leader hours must be hoarded then allocated with the same care traditionally directed at manpower allocation or financial budgets. That is not common practice today. Indirect ways to conserve time need to be considered. For example, improve post support management and establish family time block leave weekends synched with local school districts. More subtly, think through the implications of really intense learning, that is, design time to “work hard—play hard.” Transition time is exceedingly important as there are more ambiguous how and why situations presented to leaders. That is, more total demands on the leader mind—intellect. Committed leaders need help in depressurizing so their minds can be with their families during down time, not working the ninth to eleventh iteration of a tough what if in their mind’s eye which has carried over from intense learning the preceding week. This is an area where commanders, particularly general officers, simply must lead by positive example.

G. USE CHAIN TRAINING

Ready support to leader learning, particularly in the unit, is provided through the chain of command’s understanding of its own task and purpose as it planned, prepared, and actually observed actual mission execution. The communicating chain of command knows what was intended. What actually happened? Knowing that, the chain of command is in the best position to encourage, if not stimulate, iterative modification of the conditions of execution to create an active learning environment. That is, iterative mission execution with AARs—commanders sharing learning of both command and of control. The point is that commander sharing of intent is absolutely vital, particularly in

unit health and readiness. Gunnery at Grafenwoehr, REFORGER, DRB in XVIII Corps were all vital, predictable, certain focusing events which stabilized units despite intense activity during the cold war.

high tempo, highly ambiguous complex operations. Therefore, the best learning is among and between actual commander teams—commander-to-commander learning—drawing on their experiences.

This training is particularly helpful in turbulent units. The combination of chain training and train-up can help build leader teams quickly. When I arrived as First Division Div G3 (Training), a staff major, one of my first assignments was to become a member of patrol and conduct a recon patrol. My patrol leader was MG DePuy, the Division Commander concerned that the DocTTP for patrols were understood by all leaders. We teamed rapidly to learn!

To achieve such learning, it is important to design experiential learning such that it will stimulate chain training in the unit. The degree of reliance on chain of command analysis and interpretation is likely less in step one of the DLS, but probably more in step three. Chain training seems a precondition to successful repetitive step three learning.

The best learning really has to be that generated by and for the chain of command. The desired leader team end state is mutual competence, confidence, vision, and trust—best developed through chain training. This applies across all of the variables of combat.

H. MAINTAINING COMPETENT TEAMS

The Army is teams—teams of commanders, staffs and soldiers. Individual competence is clearly important, but rarely will individual competence be employed other than in the context of teams of seniors, peers and subordinates—even as a commander. It would seem obvious that when one individual changes, some retraining of each of the associated teams must occur. Seldom is this consciously done. The importance of squad and AFV crew teaming is clearly understood, and training requirements have been developed associated with team proficiency. But staff teams are generally undefined. Staff performance is not specifically related to the execution of important warfighting tasks; there are no MOP/MOE suggested which could trigger requirements for remedial learning. In a similar manner, commander team task competence is not related to successful mission performance other than in the most general terms.

The enemy of team competence is turbulence and turnover. That is, movement of individuals in and out of tactical units or support organizations combined with personnel shifts within units due to promotions, etc. Whatever the cause, the combined effect is devastating on team proficiency. As we have discussed above, all leaders exist in groups

of teams. Effective science of control rests on shared task proficiency, particularly when complex cross-BOS tasks are involved. Some retraining is required whenever team members change.

The effects of turbulence on the art of command are even greater. The hallmarks of really solid commander or staff leader teams are competence, confidence, vision, and trust. None of the four can be sustained when leaders are displaced without some conscious remedial team-based learning experiences having occurred.

As leader turbulence and turnover occur, there is one of two certain effects. Either additional time is allocated to permit new teams to congeal, or the proficiency of the team is reduced, noticeably in the science, very seriously in the art. Absent extraordinary learning measures, highly proficient adaptive leader teams are extremely difficult to sustain under these circumstances. Such vulnerability increases as joint, USG, combined, and NGO/PVO leader teams are created.

Therefore, confirmation of actual individual and team task proficiency (and tracking thereof) appears essential. It is mandated in the recent FORSCOM training guidance for CONUS Army units. But there seems certain to be a long trail to institutionalization. Units are simply not accustomed to precise identification then prioritization of teams, much less keeping track of changes in teams caused by turbulence or turnover. Nor has there been rigorous identification of commander or staff team tasks by proponents, other than where the team requirement has been enshrined in enforced process—such as the processes for employing CAS. A necessary start is to identify the teams, both horizontal and vertical, then determine and prioritize task proficiency requirements. There is much to be done here such as Army determination of the force readiness tradeoffs between individual leader development (with inevitable turbulence and turnover in units) versus the importance of shared competence, confidence, vision, and trust in a leader team in the unit. Clearly there are significant tradeoffs. Perhaps they can be reduced somewhat through more effective and efficient learning.

I. DEVELOP TEAM COHESION AND COHERENCE

High-performing units require competent command and staff teams. Common sense and practice mandated group cohesion. Cohesion derived from shared trust, respect and the confidence of each individual in the other is clearly important. Looking forward to characteristics required in future command and staff teams in digitized units, however, more seems necessary than just solid interpersonal relationships, important as they are.

Some concept is required which expresses a command and staff team's better use of information, whatever technologies are employed. Some expression of teaming is required which reflects shared competence in the use of information.

Coherence is suggested as that expression.⁵³ Coherence is the ability to work well together: sharing information efficiently and anticipating what others know, do not know, and should know with proactive information sharing in case of doubt. Similar coherence is necessary for vertical and horizontal interactions with other commands.

Measures of coherence are measures of unit performance. High levels of command and staff competence mandate high orders of both cohesion and coherence. Coherence is likely to be even more important in highly ambiguous situations where mutual understanding of information becomes vital to successful mission accomplishment. There would seem to be a need to develop MOP or MOE of coherence, particularly among leader teams.

The whole concept of the staff possessing a "shadow-like" coherence to the commander and the commander's intent may be an important difference in how leader teams, command, and staff must operate for digital organizations. Much more has to be developed on the elements of staff coherence and the nature and priorities of competency to be achieved. Investigation should extend to thoughtful review as to how leaders influence subordinates. For example, e-mail provides excellent communications but there would appear to be a continuing need for close interpersonal contact particularly but not exclusively in the ground combat arms to battalion if not brigade. Successful coherence is grounded in shared interpersonal trust—a base of influence derived in personal communications which then is drawn upon with electronic means!

J. ESTABLISH TWO UNIT LEARNING FOCI

There are two different yet complementary training situations in unit training which will influence design of leader learning: (1) platoon and below and (2) company and above. The break used to be company and below contrasted to battalion and above, where complexity warranted provision of a staff to aid the commander. Now, the combination of digitization and evolving new operational requirements causes complex tasks formerly associated with battalion echelon to be shifted to company echelon. The

⁵³ Concept from Dr. Jon Fallesen, ARI, and COL (R) Ron Corson, OPTEC.

company commander, executive officer (2IC), forward observer, and first sergeant need to be acknowledged and trained as a “staff team.”

This means that the development of leader team competencies needs to extend to the company echelon for this staff team—new content for CCC.

There are several reasons for this important change:⁵⁴

- Increased acquisition means and firepower available at company echelon, substantially larger potential “battlespace”
- Increase in influence of individual soldier, now committed as an individual fighter, a symbol of national commitment, and as a weapon system (Land Warrior)
- Capabilities of both command and control mandating multi-BOS employment proficiency now expected of the company/troop commander in MIC. And when he or she is committed in SASO, the task organization can include joint, combined, and civilian organizations.

These increases in complexity of command at company echelon seem likely to increase with Joint Venture. There would appear to be a similar intensification at both battalion and brigade echelons. This means more science that just has to be known in detail by leaders—UAV capabilities, IEW baseline, etc. The quantity and quality of science to be learned increases significantly; these create important challenges for leader preparation.

Preparation of leaders will need appropriate modification, whatever the degree of command and control digitization. Several implications are the following:

- Training should absolutely continue to be multi-echelon. This is necessary for representation of vertical functional tasks (e.g., fire support]. As small unit operations become increasingly complex, it is essential that unit learning at all echelons share common “combined arms” context so that arms and services learn together as a team. Two parallel unit training efforts (platoon and below and company and above) need to be brought together in a frequent high-stress “bonding” training event, which can become the shared multi-echelon context for subsequent leader and unit learning. The battalion CALFEX is a way to serve that purpose for the Total Force maneuver battalion task force today. It is also a great way to increase confidence, both

⁵⁴ This cut varies with each functional branch. For example, for Signal it is the commo team then all above. For ADA and Arty, the Battery.

individual and team. A successful live fire exercise is a real tonic and team builder.

- Platoon and below training should proceed much as in the past. There should be clear, unambiguous focus on very high levels of task performance in execution of traditional close combat warfighting missions such as the "Red Zone" fight at the NTC or crossing the street at Shugart-Gordon. Conduct AFV combat tables to standard as often as possible in live fire but mostly in some form of simulation. Training is repetitive execution of simple drills placed in a context (lane) of varying METT-T. Field crafts are trained frequently under the most demanding conditions. All leaders are expected to demonstrate frequently tactical competence at least one echelon up. Leaders lead by personal example. And in all training, reinforce the essential teaming between the officer leader and the noncommissioned officers both teaming to learn and training up together.
- Training, company and above, is entirely combined arms, potentially joint and combined. Now the drills are combined arms in nature, including simple staff drills executed frequently by command teams from company up. The training is conducted on the terrain as frequently as possible both to reinforce capability in the friction of CTC-like quasi-combat and to establish the practical shared experiences (context) which become the scenarios for repetitive execution to increasingly difficult METT-TC fighting in TES.
- There is extensive reliance on common TacSOPs and execution of several basic drills (several for each BOS). These drills, at both company and battalion (perhaps at brigade), become the common framework for extensive use of "audibles." Thus is the battalion and below execution based, hoping for some time for the leader teams to meet and fully understand chain-of-command task and purpose, but absolutely prepared to execute based on fragmentary order (FRAGORD) execution of "audibles." This capability is essential to fight and win in the complexity and uncertainty of emerging operations such as observed in the Balkans. Now rules of engagement (ROE) join the common tactical drills.

The preparation of the commander team (brigade, battalion, company) to think and execute rapidly—almost as one mind linked by shared confidence, competence, vision, and trust, reinforced by common drills as much as by improved communications—is a central leader responsibility. The learning objective is shared, complementary "instincts" of both opportunity and of danger.⁵⁵

⁵⁵ Discussed very well in Gary Klein, *The Power of Decision*, MIT Press, 1999, particularly "Recognition-Primed Decision Model," pp. 15–30.

A separate but complementary learning challenge is the design of similar common adaptive experiential learning for ad hoc hybrid (cross BOS) task organizations which may be created company team and above. Initial experimentation will be underway in Strike Force to address learning in such organizations. Then there must be understanding of this learning environment in institutional learning.

K. COMPENSATE FOR LIMITATIONS OF TES

Leaders are increasingly reliant on the use of TES in training. They need detailed appreciation of the strengths and weaknesses of each form of simulation—live, virtual, and constructive—so they can take advantage of the strengths and minimize weaknesses of simulation technologies. They must know the OPFOR inadequacies of CBS, the field crafts absent in CCTT, the OPTEMPO costs of MILES/TWGSS. Then know how to cross use so that the strengths of one form of TES can compensate for the weaknesses of the other. More friction is clearly better.

This is the easy part, given TES prepared for MIC. An emerging challenge is to modify use of these investments to better represent the uncertainties of asymmetrical conflict. For example,

- Use current TES/TSP to replicate the CTC learning model in unit, institution, and distributed for self-development. Recreation of Bosnia MRE from JRTC to III Corps at Fort Hood is an excellent example.
- Support both education in command and training in control in execution of the CTC model when using constructive simulation at home station or in local self-development. Enable more coaching, that is, subtle variation of conditions to intensify learning or to remediate in case of learning deficiencies. Use of senior OC coaches may be necessary to support development of leader artists, particularly at brigade and above.
- Supplement use of constructive simulation with comparable, preceding, experiences in the dirt. Experiences are designed so strengths and weaknesses of simulation are understood across each of the variables of combat.

L. TUNE DECISION-MAKING PROCESSES

There are two distinct battle rhythms created today at the JRTC and NTC. One, at the JRTC, is essentially the traditional, proven, airborne 72-hour cycle expressed well as plan, prepare, execute (PPE). The formal decision-making battle rhythm at the NTC, on the other hand, is more forced, reflecting the continuing tempo of mounted operations.

This NTC tempo creates a need for brigade and battalion command and staff to be capable of monitoring, planning, and directing simultaneously—really multiple, near-simultaneous PPE.⁵⁶ Leaders must be capable of planning and preparing when time permits but success rests in ability to maintain a thoughtful, proven decision-making process during execution. Hence the term “execution basing” is used. Both applications of MDMP related to the prevailing battle rhythm are right when there is ample time to plan and prepare. Fortunate units have the opportunity to train to both the science and the art integral to the MDMP.

These CTC differences of approach need to converge more as leaders, staffs, and units adjust to new missions and to new digital technologies of control. The most challenging initial requirement is to execution base the MDMP as the tempo of warfighting increases (MIC and SASO). Leaders have to start at the basics crawl, that is, with thorough understanding of the process associated with PPE. This fundamental is embedded in the DLS step one. This basic thought process is the lowest common denominator across all of “America’s Army,” joint, and combined forces. Practically, the command and staff leader must know the processes of PPE so they know what they are omitting as time is compressed, MDMP is accelerated, and battle tempo mandates that they draw on audibles. Then the learning challenge is to learn to monitor, plan, direct (MPD) throughout training. That is run as all units experience in the CTC crucible. All subsequent training is MPD reinforced as increased battle rhythms of both JRTC and NTC mandate—run of step one and all of step three of DLS.

A critical issue appears to be the presence of time permitting classical MDMP consideration of courses of action, modified for local conditions. But even there, execution-basing alternatives are essential. The challenge here is stated well by Gary Klein in explaining his recognition-primed decision model:

We do not make someone an expert through training in formal methods of analysis. Quite the contrary is true. In fact, we run the risk of slowing the development of skills. If the purpose is to train people in time-pressured decision-making, we might require that the trainee make rapid responses rather than ponder all the implications. If we can present many situations an hour, several hours a day for days or weeks, we should be able to

⁵⁶ This distinction should not be overdrawn. The nature of the scenario at JRTC leads to a strong undercurrent of continuous operations, particularly in stability operations. In both cases, the OC feedback regimes intensify the MDMP challenge for the commanders as frequent OC briefbacks and AARs occur.

improve the trainee's ability to detect familiar patterns. The design of the scenario is critical..."⁵⁷

In view of necessary convergence of approaches, I suggest that the best learning strategy is to execution base all MDMP training conducted in the tempo of anticipated engagement. That is, establish multiple simultaneous decision-making requirements drawing on digital command and control technology enablers so that the leader and staff teams must be monitoring and directing as they plan. The theme of all MDMP BCST should be adaptation to change as a desirable state—change either to take advantage of friendly success or counteract enemy success. In all cases the purpose is to realize the outcome envisioned by the leader team.

The MDMP must be trained in the context of continuing change in increasingly complex, ambiguous situations so that both command and control are fully stressed. A way to start could be to modify rehearsal practices at CTCs to commander-team-only discussion of ways to advantage possible friendly opportunities (S3 facilitate), then ways to nullify unanticipated enemy opportunities which may develop. S3 goes first. After all, we plan to retain the initiative, so why should the S2 always lead?

This is easy to suggest, but tough to do. Units need proponent help in executing this and in supporting continuing R&D in tactical decision making. Support such as common basic TACSOPs to minimize the impact of turnover in staff officers or creation of basic operations drills (reconnaissance and security, hasty breach, battle CSS) to support command and staff repetitive BCST at home station should be provided to create genuinely execution-based operations. Current TSP are amenable to these kinds of modifications. The FXXITP can be modified with "Tips to the Trainer" how to change METT-TC based on leader performance. Subsequent actions should increase uncertainty and ambiguity in all company and above learning.

M. ESTABLISH COMMON TACTICAL CONTEXT

Common scenarios are essential to conserve road-to-war time. They permit "brown bag" leader learning and other officer learning in foreshortened learning periods. Less time is wasted explaining how the difficult tactical situation developed, therefore the focus can immediately go to the tactical issue to be learned even during a brief commander brown bag session.

⁵⁷ Klein, op cit., p. 30.

Leaders therefore need common mission context plus guidance on useful “what if” to proceed from crawl to walk to run—always more uncertain, more ambiguous. A common scenario provides capability for “a way” demonstration of competent leader or staff team execution, then the opportunity for the leader team to practice execution to standard. Then the common scenario provides the backdrop of precise “Tips to Trainer” for OC or mentor support of training crawl plus understanding of changes in variables of combat appropriate for walk, run progression.

Common scenarios provide another equally positive capability. They offer the source content for vignettes, cues, and tips for the OC or mentor (eventually TSPs), which can then be exported to several domains: to the school, where the OC or mentor is the small group leader; the unit, where the OC or mentor is the unit commander; or be distributed through distance learning for individual or team self-development with the OC or mentor provided from the institution (another opportunity for the SGI?). Occasionally, it may be possible to conduct a tactical exercise without troops (TEWT) then actually execute some vignettes (TSPs?) at a CTC where an actual OC is available. Common scenarios power effective distributed learning.

It may or may not be desirable to stay on a common scenario once the individual, team, or small unit moves into more advanced learning. It would certainly be advantageous to be able to quickly cross-walk from one domain to another (to draw on TES strengths). This needs to be determined. The major challenge is not in cross-walking simulations. Rather it is continuous provision of detail required such that learning of both the what of control but also the why and how of command occurs. The scenario must be sufficiently rich and mineable to support multiple changes to variables of combat if it is to support education in the art of command. For example, once a very complex political, military, economic, social situation is established and the road to war understood (Kosovo is a superb example, as discussed above), then the trainer needs to build in hooks and probes to enable branches and sequels which go from bad to worse across political, military, economic, and social domains in order to enrich the learning environment—complexity, uncertainty, volatility, and ambiguity.⁵⁸ Lots of solid examples can be had just talking to the troops at any branch post or in reading the e-mail from the Balkans! Comparable complexity is desirable and feasible in building MIC scenarios.

⁵⁸ Thanks to COL Landry, DAC, ADA School, for this conceptualization of the environment.

VII. CREATING ADAPTIVE LEADERS

Most of the infrastructure required to execute the learning strategies, policies, and programs discussed above is on hand. Many major investment costs have been paid. What is required is execution guidance, which will cause the various policies and programs to converge, preparing adaptive leaders (commanders and staff teams) across institution, tactical units, and self-development to learn, exceedingly well, both command and control. Create a prototype ALL. A start is concept approval of the following for inclusion in future leader learning models.

A. LEARNING MODEL FUTURES

Continuous change can be reasonably comforting, if the change is reasonably predictable; such change is perhaps unsettling, but predictable based on rational development curves. Increased computer capability at reduced computer cost is an example of continuous change.

But what if change is discontinuous—sudden, unpredicted, destabilizing of the best of plans and programs, all with vested proponents? I believe that sort of change is about to occur in Army learning. Therefore learning choices need to be hedged to prepare the institution to take advantage of, and not recoil from, very likely opportunities.

The ingredients of noncontinuous learning change are converging;

- Explosion of broad-band distributed communications, as industry races to expand cable systems.
- “Free,” highly capable computers. Aggressive entrepreneurs appear to be providing “free” computers to entice Internet access.
- Leaders are about to experience much-improved iterative immersion-based learning at Command and General Staff Officer Course (CGSOC), Fort Leavenworth. Shortly, the ELM will be a part of the ILE experience. Leaders will know what to expect (demand?) in more, better, learning support responsive to emerging learning requirements of Joint Venture.

The combination of these three actions is quite likely to produce wholly discontinuous change. I suggest that the R&D community needs to provide leap-ahead learning model development so that the Army (DoD) knows what it needs and can

influence inevitable developments funded by industry. A leap-ahead learning vision is required. My candidate, offered to shape the issue, is the following:

All Army leader preparation—individual and team, institution, unit (TOE and TDA), and self-development occurs in the context of several “universal” employment scenarios. The five scenarios for Strike Force could be a reasonable start. School course material or TSPs for unit or self-development use, platoon through brigade, would consist of vignettes drawn from the common scenarios with appropriate cues (or “probes”) built in to permit selective crawl, walk, run experiential learning. Control is trained, drawing on OC-provided “Tips for the Trainer”; command is educated, supported by mentors also with “Tips for the Mentor.” Constructed in synch with the ELM at Fort Leavenworth, with a heavy dose of structured practice leading to consistent individual and team assessment, all of the material would be mixed media suitable for home, office, or school application. Others can elaborate with useful features for various proponents, joint, combined, or NGO/PVO application.

The above is intended solely to describe a way. The issue is that such a futures model needs to be established soon so *that there is an explicit leader learning strategy requirement* which will shape (influence?) ongoing commercial development in a very fast-moving e-business world. And the TLS R&D and Analysis and Assessment (A&A) communities will benefit from much-needed user guidance.

A way presented above incorporates central themes of this paper, which can be summed up as policies and programs addressing improvement of both the effectiveness and the efficiency of leader preparation. This is terribly important in an Army facing severely constrained resources.

Improved effectiveness comes through policies such as:

- Explicit recognition of learning needs for both command and control, the art and science
- Exploiting the proven successes of the CTC learning model
- Intensifying the learning processes of command and control through repetition of the DLS for leaders as individuals and as leader team members
- Targeting specific venues for leader learning particularly self-development
- Providing opportunities for continuous learning.

Improved efficiencies in use of resources, particularly time, must accompany the effort. Examples include the following:

- Ensure leader knowledge of the leader learning system

- Develop low-overhead, repetitive learning exercises
- Prepare common scenarios to reduce road-to-war friction and facilitate distribution
- Designate leader teams, focus learning on priority tasks
- Provide timely performance feedback
- Encourage establishment on reinforcing unit policies such as common SOPs and increased noncommissioned officer responsibilities.

B. LEARNING MODEL DESIGN

Adaptive Leader Learning Principles

- | | |
|---|--|
| • Two complementary programs—train control, educate command. | • Learn by immersion in ambiguous experiences—repetitive, stressful. |
| • Prepare leader teams (commanders and staffs) sharing vision, competence, confidence and trust. | • 3 × 3 learning (individual, team, and collective [3] in institution, self-development, and unit [3]). |
| • Competence-base control, NOT command. | • Near-continuous learning for ALL leaders (soldiers E5 and above). |

- Each model has two complementary programs—train control, educate command
- All leaders function in teams (commanders and staff leaders)
- The goal of leader preparation is shared vision, competence, confidence, and trust
- Competence-base performance of control processes, but not command practices
- Learn command and control through repetitive, stressful immersion, in highly ambiguous situations, drawing on ELM in school and self-development as feasible
- Create near-continuous learning—linking school, unit, self-development-OPMS XXI/EPMS to preparation of individuals, teams, and units (a 3 × 3 learning matrix)
- Train up to prescribed levels (all soldiers E5 and above).

In execution of the general guidance, design learning models to use the following:

- CTC learning practices as possible
- Common scenario content: school, unit, and self-development
- Common TACSOPs (Administrative SOPs—save garrison time as feasible)
- Common leader prep exercises and support for application in school, unit, and self-development.

At enclosure are representative “a way” applications to a 3× learning matrix of learning choices and general learning model guidance presented above.

C. A FRAMEWORK FOR MANAGEMENT

Last, there needs to be a management framework which will support—in fact, encourage—the preparation of adaptive leaders who have mastered the basics of land combat (MIC) and are ready to serve across the branches, working closely with joint, USG, combined, and NGO/PVO organizations. This management framework should encourage diversity as each Proponent responds to differing challenges. Some challenges will be unique to particular Proponents. Yet all should develop adaptive leader policies and programs which are consistent and mutually supporting across institution, unit, and self-development. And all proponents should propose allocation of *time* for learning (self-development and in units) in coordination with corps commanders.

The following should be the general characteristics of leader learning management:

- Relevant to stimulating innovative adaptive leader development by various proponents
- Responsive to a 3 × 3 learning matrix, interlocking individual, team, and collective learning content consistently across institution, unit, and self-development
- Supportive of user funding of “profit centers” for learning development (proponents, ATSC, CTC, NSC, and UAN/CALL)
- Support independent assessment of effectiveness and efficiency of all learning programs across all cells of the 3 × 3 learning matrix.

Proponents will require a specific mandate to work very closely with their proponent organizations cross-MACOM from the strategic leadership of the Army combined with broad mission guidance from TRADOC, presumably the Army Executive Agent, for the preparation and sustainment of adaptive leaders.

There need to be broad resource management authorities provided to proponents, tempered by tough, detailed, searching management reviews (Functional Area Assessments?) conducted by Department of the Army (VCSA or DCSPER/DCSOPS).

Finally, and most important to advantage the significant adaptive leader-development opportunity which is opening to the Army, select strong, independent proponents—masters of their branch—empowered to act decisively. And franchise the TRADOC learning “factories”—ATSC, CTC, NSC, and UAN/CALL. Encourage these proponents and “factories,” under the governance of TRADOC, to develop visions of likely Joint Venture “futures” such as:

- The critical locale for leader learning is the unit
- All individual learning occurs primarily as a member of a team
- The primary learning domain is distance learning with physical grouping only as required
- Only IET *must* be institutional learning—values of the profession of arms, socialization, and learning how to learn in the unit and through self-development.

The diagram below relates the various topics of leader preparation to the venues of individual, team, and collective. The diagram indicates that art and science must both be learned by the individual and leader team. Collective learning should address only the science of control.

Leader Preparation Guidance

	Indiv	Team	Collective
art-science(sci)	both	both	sci
indiv and teams	both	both	teams
evaluation - self and external	sci-ext	sci-self	sci-ext
event-change focus	event-sci change-art	change	event
train up - present or future	future	future	future
school or unit	both	unit	unit
self or supported devmt	both	sptd	sptd
proficiency or time-based	both	prof	time
MIC and/or SASO	both	METL	METL
Unit or TRADOC	TRADOC	both	unit
diversity	narrow	diverse	diverse
structured or free play	structured	free play	structured
objective or subjective	objective	subj	subj

The diagram below relates the various topics of learning model guidance to the venues of institution, self-development, and unit. For example, first element of guidance: experiential learning should increase in all three (indicated by "x").

Applicability - Learning Model Guidance

	Institution	Self-development	Unit
experiential	x	x	x
stressful	x	x	x
near-continuous		x	x
CTC learning model	x	x	x
support dominant cmdr		x	x
conserve tactical ldr time			x
chain training	how to		x
competent teams	how to	x	
cohesive teams	how to	x	x
two learning foci			x
compensate for TES	x	x	x
tune decision-making		x	x
common tactical content	x	x	x

D. CULTURAL CHALLENGES

Given the diversity of treatment of the subject, readers will find certain portions of this paper objectionable, if not flat wrong, from their perspective. Unfortunately, many of the issues raised are not frequently discussed in an Army consumed in day-to-day commitment. I hope this paper may become a useful "shorthand," stimulating discussion among concerned professionals weighing where to go in future leader preparation.

I suggest that discussion should start by visiting important cultural issues—the inevitable "baggage" accompanying policy decisions about leader preparation. Consider these issues a litmus test of sorts for the challenge of implementing much of what is proposed in this paper. Weigh the time and effort which will be required to change the prevailing culture. Some of the changes suggested would not be accepted by the majority

of serving leaders today; in a high-performing organization (which the Army certainly is), every "unprepped" order drains consensus.⁵⁹

Several dysfunctional cultures follow:

- *No "testing."* "All training is evaluated, all evaluation is training" was one of the central precepts and most important aspects of the First Training Revolution post RVN. Other than in aviation and confirmation of proficiency pre live fire (both safety issues) evaluation has about disappeared from the tactical Army. Under what ground rules is it to be re-established for leader preparation in institution, unit, and self-development?
- *The only really good school instruction is resident instruction.* Nonresident instruction (NRI) is acceptable but clearly second best. This attitude is the kiss of death to substantial expansion of distributed officer learning (training and education).
- *The only effective staff teams are formed "eyeball to eyeball."* Distributed staffs do not work under stress.
- *Allocation of time is the untouchable prerogative of the local commander.* "Suck it up" when new requirements come in. The response is "can do," not "what is not to be done," or "too late to change." Unless and until time is allocated through broad directive Army guidance, self-development and the profound impact of distance = 0 will not be feasible.

The costs of changing the culture should be addressed up front by the strategic leadership of the Army.

⁵⁹ Remarkable orders accompanied Army rebuilding. The cultures of alcohol and tobacco were attacked frontally. The NTC was a hard sell.

GLOSSARY

A&A	analysis and assessment
AAN	Army After Next
AAR	after action review
ABCS	Army Battle Command System
ACCP	Army Correspondence Course Program
ADLP	Army Distance Learning Program
AFV	Armored Fighting Vehicle
ALL	adaptive leader learner
ARI	Army Research Institute
ARL	Army Research Laboratory
ARNG	Army National Guard
ARTEP	Army Training Evaluation Program
ATSC	Army Training Support Center
AWE	Army warfighting experiments
BBSE	brigade and below staff exercises
BCST	Battle Command/Staff Training
BCTP	battle command training program
BMM	Borrowed Military Manpower
BOS	battlefield operating system
BSE	battle staff exercise
BSTS	battle staff training system
C	Combat
CAL	Center of Army Leadership
CALFEX	combined arms live-fire exercise
CALL	Center of Army Lessons Learned
CAS3	Combined Arms and Services Staff School
CATS	Combined Arms Training Strategy
CBS	Corps Battle Simulation

CCC	captains' career courses
CCTT	Close Combat Tactical Trainer
CF/CMF	career field/career management field
CFX	command field exercise
CGSOC	Command and General Staff Officer Course
CMF	Career Management Field
CMTC	Combat Maneuver Training Center
COFT	conduct of fire trainer
CPX	command post exercise
CS	combat support
CSM	Command Sergeant Major
CSS	combat service support
CTC	combat training center
CWR	crawl, walk, run
DAC	Department of the Army Civilians
DLS	digital learning strategy
DoD	Department of Defense
DVD	digital video disc
EIB	expert infantry badge
ELM	experiential learning model
EMB	expert medical badge
EPMS	Enlisted Personnel Management System
FA	functional area
FCX	fire coordination exercise
FLOT	forward line of troops
FORSCOM	U.S. Army Forces Command
FRAGORD	fragmentation order
FSO	fire support officer
FXXITP	Force XXI Training Program
GDP	General Defense Plan

IET	initial entry training
ILE	intermediate level education
IS	instrumentation system
JRTC	Joint Readiness Training Center
JSEAD	Joint suppression of enemy air defense
JTF	Joint Task Force
LF	live fire
LTP	leader training program
MCS	Maneuver Control System
MDMP	military decision-making process
METL	mission essential task list
METT-TC	mission, enemy, troops, terrain-time, civilians
MIC	mid-intensity conflict
MILES	multiple integrated laser engagement system
MOE	measure of effectiveness
MOP	measure of performance
MOS	military occupational specialties
MRE	mission rehearsal exercises
NATO	North Atlantic Treaty Organization
NCOES	noncommissioned officer education system
NEA	Northeast Asia
NGO/PVO	Nongovernmental Organization/Private Volunteer Organization
NRI	nonresident instruction
NSC	National Simulation Center
NTC	National Training Center
OC	observer controller
OPFOR	Opposition Force
OPMS	Officer Personnel Management System
OPTEMPO	Operations Tempo

PCC	pre-command course
PLDC	Primary Leader Development Course
POI	program of instruction
PPE	plan, prepare, execute
R&D	research and development
ROE	rules of engagement
RRF	Rapid Reaction Force
RSOI	reception, staging, onward movement
SAMS	surface-to-air missiles
SASO	security and stability operations
SATS	Standard Army Training System
SCP	TRADOC School of Command Preparation
SFOR EUR	Stability Force, Europe
SGI	small group instructor
SKA	skills, knowledge, attributes
SMA	Sergeants Major Academy
SME	subject matter expert
SOP	standard operating procedure
SQT	skill qualification testing
STANAG	standardization agreement (NATO)
SWA	Southwest Asia
SWG	Spring War Game
TACFIRE	Tactical Fire Direction System
TADSS	training aids, devices, simulation, and substitution
TASS	Total Army School System
TDA	table of distribution Army
TES	tactical engagement simulation
TEWT	tactical exercise without troops
TLS	Training, Leader, Soldier (Task Force)
TOE	table of organization and equipment
TRADOC	Training and Doctrine Command
TSB	training support brigade
TSP	training support packages

TTP	tactics, techniques, and procedures
UAN	University after Next
UCOFT	unit conduct of fire trainer
ULLS	unit level logistics system
USAR	U.S. Army Reserve
USAREUR	U.S. Army Europe
VASA	values, attributes, skills, and actions
WWW	World Wide Web

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The objective of this study is to describe the learning requirements for preparing adaptive leaders at brigade echelon and below for the U.S. Army, then to propose an explicit methodology to develop these adaptive leaders of all grades in both institution and unit. The methodology should serve as a foundation for subsequent learning models to be developed within Army Training and Doctrine Command. The study describes 12 learning choices which determine learning program design; then it recommends development of an "Adaptive Leader Learner" supportive of "structured practice." It then draws on existent training doctrine and the TRADOC Digital Learning Strategy to propose 13 guidelines for creating learning models. Finally, it recommends specific guidance for direction of actual development of the learning models.

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training, education, leader development, learning programs, adaptive leaders, leader teams, intensive learning, art of command, science of control

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